Board of Directors Agenda

June 18, 2026

Click link to access the meeting:

https://www.zoomgov.com/j/1602805839

Zoom Meeting ID

Ways to Join

Computer: Click the link above. You will be prompted to run the Zoom browser or Zoom application. Once signed on to the meeting, you will have the option to join using your computer audio system or phone.

Webinar Features:

Raise Hand	▶	Use the **raise hand** feature every time you wish to make a public comment.
CC	▶	Participants can enable **closed captioning** by clicking the CC icon. You may also view the full transcript and change the font size by clicking 'subtitle settings'. These features are not available via phone.
	▶	This symbol shows you are **muted**, click this icon to unmute your microphone.
	▶	This symbol shows you are currently **unmuted**, click this button to mute your microphone.
	▶	The chat feature should be used by panelists and attendees solely for "housekeeping" matters as comments made through this feature will not be retained as part of the meeting record. See the **Live Verbal Public Comment** for instructions on how to make a public comment.

Smartphone or Tablet: Download the Zoom app and join the meeting by clicking the link or using the webinar ID (found in the link).

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Phone:

1. If you are joining the meeting audio by phone and viewing the meeting on a device, dial the number provided in the 'join audio' phone call tab of the initial pop-up, and enter the Meeting ID (found in the link).
2. If you are joining by phone only, dial: **+1-669-900-9128** or **+1-253-215-8782** and type the meeting ID found in the link, press #. You will have access to the meeting audio, **but will NOT be able to view the PowerPoint presentations.**

Live Verbal Public Comments: Use the 'Raise Hand' icon every time you wish to make a public comment on an item. Raise your hand once the agenda item you wish to comment on has been called. In person public comments will be taken first, virtual attendees will be taken in the order in which they raise their hand. Requests to speak will not be taken after the public comment period ends, unless under the Chair's discretion. General Public Comment, at the beginning of the Board of Directors meeting only, will be limited to five speakers. Additional speakers with general public comments will be heard at the end of the meeting. Two-minutes of time is allotted per speaker, unless otherwise directed by the Chair.

Public Comments Made Via Zoom

1. Click the link found at the top of this instruction page
2. Click the raise hand icon located in the bottom center of the platform
3. The Clerk will announce your name when it is your turn to speak
4. Unmute yourself to speak

Public Comments Made by Phone Only

1. Dial **+1-669-900-9128**
2. Type in the zoom meeting ID found in the link and press #
3. Dial *9 to raise your hand via phone
4. The Clerk will call out the last 4 digits of your phone number to announce you are next to speak
5. Dial *6 to unmute yourself

Written Public Comments (before the meeting): Written public comments will be recorded in the public record and will be provided to MTS Board Members in advance of the meeting. Comments must be emailed or mailed to the Clerk of the Board* by 4:00pm the day prior to the meeting.

Translation Services: Requests for translation services can be made by contacting the Clerk of the Board* at least four working days in advance of the meeting.

In-Person Participation: In-person public comments will be heard first. Following in-person public comments, virtual attendees will be heard in the order in which they raise their hand via the Zoom platform. Speaking time will be limited to two minutes per person, unless specified by the Chairperson. Requests to speak will not be taken after the public comment period ends, unless under the Chair's discretion.

Instructions for providing in-person public comments:

1. Fill out a speaker slip located at the entrance of the Board Room;
2. Submit speaker slip to MTS staff seated at the entrance of the Board Room;
3. When your name is announced, please approach the podium located on the right side of the dais to make your public comments.

Members of the public are permitted to make general public comment at the beginning of the agenda or specific comments referencing items on the agenda during the public comment period. General Public Comment, at the beginning of the Board of Directors meeting only, will be limited to five speakers. Additional speakers with general public comments will be heard at the end of the meeting.

Assistive Listening Devices (ALDs): ALDs are available from the Clerk of the Board* prior to the meeting and are to be returned at the end of the meeting.

Reasonable Accommodations: As required by the Americans with Disabilities Act (ADA), requests for agenda information in an alternative format or to request reasonable accommodations to facilitate meeting participation, please contact the Clerk of the Board* at least two working days prior to the meeting.

***Contact Information:** Contact the Clerk of the Board via email at ClerkoftheBoard@sdmts.com, phone at **(619) 398-9561** or by mail at **1255 Imperial Ave. Suite 1000, San Diego CA 92101.**

Agenda de la Junta de Directores

June 18, 2026

Haga clic en el enlace para acceder a la reunión:

https://www.zoomgov.com/j/1602805839

ID de la reunión en Zoom

Formas de Participar

Computadora: Haga clic en el enlace más arriba. Recibirá instrucciones para operar el navegador de Zoom o la aplicación de Zoom. Una vez que haya iniciado sesión en la reunión, tendrá la opción de participar usando el sistema de audio de su computadora o teléfono.

Funciones del Seminario En Línea:

Levantar la mano	▶	Use la herramienta de **levantar la mano** cada vez que desee hacer un comentario público.
CC	▶	Los participantes pueden habilitar **el subtitulado** haciendo clic en el ícono CC. También puede ver la transcripción completa y cambiar el tamaño de letra haciendo clic en “configuración de subtítulos”. Estas herramientas no están disponibles por teléfono.
	▶	Este símbolo indica que usted se encuentra en **silencio**, haga clic en este ícono para quitar el silenciador de su micrófono.
	▶	Este símbolo indica que su micrófono se encuentra **encendido**. Haga clic en este símbolo para silenciar su micrófono.
	▶	La herramienta de chat deben usarla los panelistas y asistentes únicamente para asuntos “pertinentes a la reunión”, ya que comentarios realizados a través de esta herramienta no se conservarán como parte del registro de la reunión. Consulte el **Comentario público verbal** en vivo para obtener instrucciones sobre cómo hacer un comentario público.

Teléfono Inteligente o Tableta: Descargue la aplicación de Zoom y participe en la reunión haciendo clic en el enlace o usando el ID del seminario web (que se encuentra en el enlace).

Descarga en el App Store

Obténla en Google Play

Teléfono:

1. Si está participando en la reunión mediante audio de su teléfono y viendo la reunión en un dispositivo, marque el número indicado en la pestaña de llamada telefónica “unirse por audio” en la ventana emergente inicial e ingrese el ID de la reunión (que se encuentra en el enlace).
2. Si está participando solo por teléfono, marque: **+1-669-900-9128** o **+1-253-215-8782** e ingrese el ID de la reunión que se encuentra en el enlace, pulse #. Tendrá acceso al audio de la reunión, **pero NO podrá ver las presentaciones en PowerPoint.**

Comentarios Públicos Verbales en Vivo: Use la herramienta “levantar la mano” cada vez que desee hacer un comentario público sobre alguno de los artículos. Levante la mano una vez que el artículo de la agenda sobre el que desea comentar haya sido convocado. Los comentarios públicos en persona se escucharán primero, se escuchará a los asistentes virtuales en el orden en el que levanten la mano. No se aceptarán solicitudes para hablar después de que termine el periodo para hacer comentarios públicos, a menos de que el presidente determine de otra forma a su discreción. Comentarios públicos generales, únicamente al inicio de la reunión de la Junta de Directores, se limitarán a cinco personas que deseen hablar. Las personas adicionales que deseen aportar comentarios públicos generales podrán hacerlo al final de la reunión. Se otorga dos minutos de tiempo por persona que desee hablar, a menos de que el presidente instruya de otra forma. (*Consulte la página 2 para obtener instrucciones sobre cómo hacer un comentario público.*)

Comentarios Públicos a Través de Zoom

1. Haga clic en el enlace que se encuentra en la parte superior de esta página de instrucciones
2. Haga clic en el ícono de levantar la mano en el centro inferior de la plataforma
3. El secretario anunciará su nombre cuando sea su turno de hablar
4. Desactive el silenciador para que pueda hablar

Comentarios Públicos Realizados Únicamente por Teléfono

1. Marque el **+1-669-900-9128**
2. Ingrese el ID de la reunión en Zoom que se encuentra en el enlace y pulse #
3. Marque *9 para levantar la mano por teléfono
4. El secretario indicará los últimos 4 dígitos de su número de teléfono para anunciar que usted será el siguiente en hablar
5. Marque *6 para desactivar el silenciador



Comentarios Públicos por Escrito (Antes de la Reunión): Los comentarios públicos por escrito se registrarán en el registro público y se entregarán a los miembros de la Junta de MTS antes de la reunión. Los comentarios deben enviarse por correo electrónico o postal al secretario de la Junta* antes de las 4:00 p.m. el día anterior a la reunión.



Servicios de Traducción: Pueden solicitarse servicios de traducción comunicándose con el secretario de la Junta* por lo menos cuatro días hábiles antes de la reunión.



Participación en Persona: Los comentarios públicos en persona se escucharán primero. Después de los comentarios públicos en persona, se escuchará a los asistentes virtuales en el orden en el que levanten la mano a través de la plataforma de Zoom. El tiempo para hablar se limitará a dos minutos por persona, a menos de que el presidente especifique de otra forma. No se recibirán solicitudes para hablar después de que termine el periodo para hacer comentarios públicos, a menos de que el presidente determine de otra forma a su discreción.

Instrucciones para brindar comentarios públicos en persona:

1. Llene la boleta para personas que desean hablar que se encuentran en la entrada de la Sala de la Junta.
2. Entregue la boleta para personas que desean hablar al personal de MTS que se encuentra sentado en la entrada de la Sala de la Junta.
3. Cuando anuncien su nombre, por favor, acérquese al podio ubicado en el lado derecho de la tarima para hacer sus comentarios públicos.

Los miembros del público pueden hacer comentarios públicos generales al inicio de la agenda o comentarios específicos que hagan referencia a los puntos de la agenda durante el periodo de comentarios públicos. Los comentarios públicos generales únicamente al inicio de la reunión de la Junta de Directores, se limitarán a cinco personas que deseen hablar. Las personas adicionales que deseen aportar comentarios públicos generales podrán hacerlo al final de la reunión.



Dispositivos de Asistencia Auditiva (ALD, por sus siglas en inglés): Los ALD están disponibles con el secretario de la Junta* antes de la reunión y estos deberán ser devueltos al final de la reunión.



Facilidades Razonables: Según lo requerido por la Ley de Estadounidenses con Discapacidades (ADA, por sus siglas en inglés), para presentar solicitudes de información de la agenda en un formato alternativo o solicitar facilidades razonables para facilitar su participación en la reunión, por favor, comuníquese con el secretario de la Junta* por lo menos dos días hábiles antes de la reunión.



***Información de Contacto:** Comuníquese con el secretario de la Junta por correo electrónico en ClerkoftheBoard@sdmts.com, por teléfono al **(619) 398-9561** o por correo postal en **1255 Imperial Ave. Suite 1000, San Diego CA 92101.**

Metropolitan Transit System

Board of Directors

REVISED Agenda

June 18, 2026 at 9:00 a.m.

In-Person Participation: James R. Mills Building, 1255 Imperial Avenue, 10th Floor Board Room, San Diego CA 92101

Teleconference Participation: (669) 254-5252; Webinar ID: 160 280 5839, https://www.zoomgov.com/j/1602805839

NO.	ITEM SUBJECT AND DESCRIPTION	ACTION
1.	**Roll Call**	
2.	**Public Comments** This item is limited to five speakers with two minutes per speaker. Others will be heard after Board Discussion items. If you have a report to present, please give your copies to the Clerk of the Board.	
	CONSENT ITEMS	
3.	**Approval of Minutes** Action would approve the May 21, 2026 Board of Directors meeting minutes and the June 11, 2026 Board Workshop minutes.	Approve
4.	**CEO Report**	Informational
5.	**On-Call Job Order Contracting (JOC) General Civil Construction Services – Contract Award** Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. PWG457.0-26, with ABC General Contractor, Inc. (ABCGC), for on-call general civil construction services, to not exceed the statutory JOC limits under Public Contract Code Section 20128.5, calculated to be in the amount of $6,576,000.00, for one (1) year beginning July 1, 2026.	Approve
6.	**On-Call Job Order Contracting (JOC) Railroad Construction Services – Contract Award** Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. PWL456.0-26, with Domestic Rail Solutions (DRS), for on-call railroad construction services, to not exceed the statutory JOC limits under Public Contract Code Section 20128.5, calculated to be in the amount of $6,576,000.00, for one (1) year beginning July 1, 2026.	Approve
7.	**Orange Line (OL) Phase 2 Construction Services – Contract Award** Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. PWL445.0-25, to Balfour Beatty Infrastructure, Inc. (Balfour) for the OL	Approve



Phase 2 Construction Services in the amount of $58,397,969.61, plus a 10% contingency for change orders administered by the CEO, for a total of $64,237,766.57.

8. **Barracuda Subscription Renewal 3 Year – Contract Award** — Approve

Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3208.0-26, with Datel Systems Incorporated (Datel), for a three-year renewal of Barracuda software and hardware subscription services, in the amount of $262,910.00.

9. **Bridge Maintenance, Blue Line South – JOC Work Order Agreement** — Approve

Action would would authorize the Chief Executive Officer (CEO) to execute Work Order No. MTSJOC347-48 under MTS Doc. PWG347.0-22, with ABC General Contractor, Inc. (ABCGC), in the amount of $272,030.17 for addressing routine repair, maintenance, and housekeeping items noted during the annual bridge inspection report for Blue Line South

10. **SAP S/4HANA Cloud Licensing – Contract Award** — Approve

Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3235.0-26 with Carahsoft Software Corp. (Carahsoft), in the amount of $9,975,331.96 for SAP S/4HANA software licensing subscriptions for five (5) years.

11. **Darktrace Subscription Renewal 5 Year – Contract Award** — Approve

Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3206.0-26, with Nth Generation Computing, Inc. (Nth), to provide Darktrace subscription renewal, for a contract period of three (3) base years and two (2) 1-year options, in the amount of $1,840,384.40, (inclusive of $7,234.40 sales tax for taxable items as denoted on Attachment B).

12. **Fiscal Year (FY) 2026 Audit – Engagement Letter and Interim Audit Results** — Informational

13. **Master Concessionaire Services – Contract Amendment** — Approve

Action would authorize the Chief Executive Officer (CEO) to execute Amendment No. 2 to MTS Doc. G2653.0-23 with BriceHouse Station, LLC (BriceHouse) related to temporary activations and special event management at the Gaslamp Quarter Trolley Station, Gaslamp Square, and Convention Center Station.

14. **Proposed Revisions to Ordinance No. 2 Relating to Proof of Fare Payment by Passengers, Ordinance No. 5 Relating to the Enforcement Authorities of Designated MTS Employees, and Ordinance No. 13 Relating to Prohibited Conduct and Actions on Transit Vehicles, Transit Facilities, Trolley Stations and Bus Stops** — Approve

Action would 1) Adopt the proposed amendments to Ordinance No. 2 (An Ordinance Requiring Proof of Fare Payment by Passengers Using the San Diego Trolley) Ordinance No. 5 (An Ordinance Relating to the Enforcement Authorities of Designated MTS Employees) and Ordinance No. 13 (An

Ordinance Regarding Prohibited Conduct Onboard Transit Vehicles and Prohibited Actions on or About a Transit Facility, Trolley Station or Bus Stop) and 2) Waive the requirements of MTS Board Policy No. 22 "Rules of Procedure for MTS Board of Directors" Sections 22.4.3, stating all ordinances shall be read in full either at the time of introduction or passage (per MTS Board Policy No. 22, unanimous vote of the Board members present is required in order to waive further reading).

15. **Proposed Amendments to For-Hire Vehicle Services Regulations within MTS Ordinance No. 11 and MTS Board Policy No. 34** — Approve

Action would adopt the proposed amendments to Ordinance No. 11 "An Ordinance Providing for the Licensing and the Regulating of Transportation Services Within the City and County by the Adoption of a Uniform Paratransit Ordinance" and revisions to Board Policy No. 34 "For-Hire Vehicle Services".

16. **PRONTO Extend Pilot Program – Pilot Extension** — Approve

Action would approve an extension of the PRONTO Extend Pilot Program until June 30, 2029.

17. **Operations Budget Status Report for April 2026** — Informational

18. **Microsoft Volume License Agreement (VLA) – Contract Award** — Approve

Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3209.0-26, with Insight Public Sector, Inc. (Insight), in the amount of $1,831,320.24 for the provision of Microsoft software licensing subscriptions, support, and estimated as-needed licensing and support for three (3) years.

DISCUSSION ITEMS

19. **Public Hearing: Assembly Bill (AB) 2561 (McKinnor): Status of Vacancies, Recruitment and Retention (Thuy Nguyen)** — Informational

20. **Public Hearing: Fiscal Year (FY) 2027 Operating Budget Discussion (Gordon Meyer)** — Approve

Action would 1) Receive testimony, review, and comment on the FY 2027 MTS Operating Budget at a public hearing; and 2) Enact Resolution No. 26-08 adopting the FY 2027 operating budget for the MTS, San Diego Transit Corporation (SDTC), San Diego Trolley (SDTI), San Diego & Arizona Eastern Railway Co. (SDAE), MTS Contract Services, and the Coronado Ferry.

21. **Annual Safety Performance Review and Approval of Updated Agency Safety Plan (Fabeann Soberg and Jared Garcia)** — Approve

Action would approve updates to the Public Transportation Agency Safety Plan (PTASP).

22. **Fiscal Year (FY) 2026 Q3 Performance Monitoring Report (Brent Boyd and Matthew Grace)** — Informational

OTHER ITEMS

23. Chair, Board Member and Chief Executive Officer's (CEO's) Communications

24. Remainder of Public Comments Not on The Agenda

This item is a continuation of item No. 2 (Public Comment), in the event all speakers who request to comment on item No. 2 are not called. If all Public Comment is accepted during item No. 2, no additional public comment will be accepted under this item.

25. Next Meeting Date

The next Board of Director's meeting is scheduled for July 30, 2026 at 9:00am.

CLOSED SESSION

26. Public Comment for Closed Session

27. Closed Session – Conference with Legal Counsel – Existing Litigation Pursuant to California Government Code Section 54956.9(d)(1) — Possible Action

Katherine Noia v. San Diego Metropolitan Transit System, et al.
SDSC Case No. 25CU019084C (Dept C-74, Hon. Blaine Bowman)

ADJOURNMENT

28. Adjournment

Lucia Mansour

From: Javier Haros <javierharos@gmail.com>
Sent: Wednesday, June 17, 2026 11:17 AM
To: MTS Clerk of the Board; jmccann@chulavistaca.gov
Cc: David Jentz; HOA Manager; DAVID GONZALEZ; Maria E. Navarrro; Blanca Noriega
Subject: Written Public Comment and Follow-Up Request for June 18, 2026 MTS Board Meeting
Attachments: Written Public Comment and Follow-Up Request for June 18, 2026 MTS Board Meeting.pdf; Current&Proposed route to H st Trolley pictures v2 (1) (1).pdf; H st trolley_Colorado_Access_Closure_Petition v2 (1) (1).pdf; Safety Incidents Packet with pictures v2 (1) (1).pdf

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear Clerk of the Board,

Please accept the attached document as a written public comment and follow-up request regarding the Colorado Avenue Pedestrian Access Closure Petition previously submitted to the MTS Board on November 20, 2025.

We respectfully request that this correspondence be included in the public record and distributed to MTS Board Members in advance of the June 18, 2026 Board meeting.

The attached letter requests an update regarding the status of the petition and includes a summary of the ongoing public safety concerns affecting the Holiday Gardens HOA and surrounding Colorado Avenue community. Supporting evidence, including the previously submitted Safety Incidents Packet, photographic documentation, and proposed alternative pedestrian routing information, has also been provided for review.

We appreciate the Board's consideration of this matter and respectfully request a written response regarding the status of the petition and any actions currently under consideration.

Thank you for your time and assistance. Please confirm receipt of this submission at your earliest convenience.

Sincerely,

Javier Haros
President, Holiday Gardens HOA
javierharos@gmail.com
(619) 746-5615

HOLIDAY GARDENS HOA

Subject: Written Public Comment and Follow-Up Request – Colorado Avenue Pedestrian Access Closure Petition

To the San Diego Metropolitan Transit System (MTS) Board,

On behalf of the Holiday Gardens Homeowners Association and the residents of the Colorado Avenue community, I respectfully submit this written public comment and follow-up request regarding the petition packet previously submitted to the MTS Board on November 20, 2025, requesting the closure or permanent securing of the pedestrian access point connecting the 400 block of Colorado Avenue to the H Street Trolley Station parking area.

Please accept this correspondence as both a follow-up to our original petition and a request that this matter remain part of the public record and be distributed to MTS Board Members for review and consideration.

The Holiday Gardens HOA and surrounding residents continue to experience significant public safety concerns that we believe are directly associated with the unrestricted access provided through this pedestrian connection. Since submitting our petition, community concerns have remained unresolved, and residents continue to be impacted by ongoing criminal activity and public safety hazards in the immediate vicinity of the access point.

The Safety Incidents Packet previously provided to MTS documents numerous incidents and conditions affecting the neighborhood, including but not limited to:

- Gunshots striking a residential living room wall
- Drug use, narcotics activity, and drug paraphernalia
- Homeless encampments and unauthorized occupancy
- Trespassing and loitering
- Vandalism and graffiti
- Destruction of electrical meter enclosures, utility infrastructure, and water lines
- Vehicle thefts and vehicle break-ins
- Residential burglaries and package thefts
- Indecent exposure incidents
- Fire hazards associated with open flames and encampments
- Violent crimes and assaults occurring in the area
- Individuals possessing or displaying weapons
- Accumulation of trash, hazardous waste, and other health and safety hazards

In addition to the Safety Incidents Packet, supporting photographic evidence and documentation have been provided demonstrating the ongoing conditions affecting the community. We have also provided information regarding a proposed alternative pedestrian route that would continue to allow access to transit services while reducing the adverse impacts on nearby residents.

At this time, we respectfully request an update regarding the status of our petition, including:

1. Whether the petition has been reviewed by the MTS Board and/or appropriate MTS staff.
2. Any findings, recommendations, or actions that have been made regarding the requested closure or securing of the access point.
3. Whether additional information or coordination is needed from the Holiday Gardens HOA or community residents.
4. The anticipated timeline for review, consideration, and final determination.
5. Whether this matter has been discussed at any Board meeting, committee meeting, or staff review process, and if so, whether any meeting minutes, staff reports, recommendations, or related documents are available for public review.

The residents of Holiday Gardens remain committed to working collaboratively with MTS, the City of Chula Vista, and public safety agencies to identify a reasonable solution that balances transit accessibility with the safety and quality of life of the surrounding community.

We respectfully request that this matter be placed on the appropriate agenda for consideration, or that the Board provide a written update regarding the status of the petition and any actions currently under consideration.

Thank you for your time, attention, and service to our region. We appreciate your consideration of this request and respectfully ask for a written response at your earliest convenience.

Sincerely,

Javier Haros
President, Holiday Gardens HOA
javierharos@gmail.com

(619) 746-5615

Joint Petition to MTS Board

Submitted by:

Holiday Gardens HOA

724 G St, Unit A

Chula Vista, CA 91910

javierharos@gmail.com

(619) 746-5615

Date: November 19, 2025

PETITION TO THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM (MTS) BOARD

REQUEST TO CLOSE PEDESTRIAN ACCESS POINT AT THE 400 BLOCK OF COLORADO AVE

On behalf of the Holiday Gardens HOA Board and the residents of the Colorado Avenue community, we hereby submit this formal request for the closure of the pedestrian access point connecting Colorado Avenue to the MTS parking lot.

Background:

This access point was historically closed but reopened at the request of the HOA during a period of significantly lower crime.

Safety Incidents:

• Gunshots striking a living room wall

• Drug use and narcotics activity

• Homeless encampments

• Trespassing and vandalism

• Destruction of electrical and water infrastructure

• Burglaries

• Vehicle thefts and break-ins

• Indecent exposure incidents

• Fires

• Individuals with weapons

• Trash

• Violence / Assaults

Request:

We request that MTS close or otherwise secure this pedestrian access point to protect residents and restore safety.

Please review Safety Incidents packet included as an attached packet.

Please review attached pictures of current pedestrian access and the new proposed permanent detour.



Javier Haros (President)

Companion Letter to City of Chula Vista

On behalf of the Holiday Gardens HOA Board and community residents, we request the City of Chula Vista's support in addressing the severe safety issues caused by the open pedestrian access point at Colorado Avenue.

We ask the City to support closure, coordinate with MTS, and help restore neighborhood safety.

Sincerely,

Javier Haros (President)

Companion Letter to CVPD

On behalf of the Holiday Gardens HOA Board and the residents of Colorado Avenue, we request CVPD's support regarding safety incidents related to the access point.

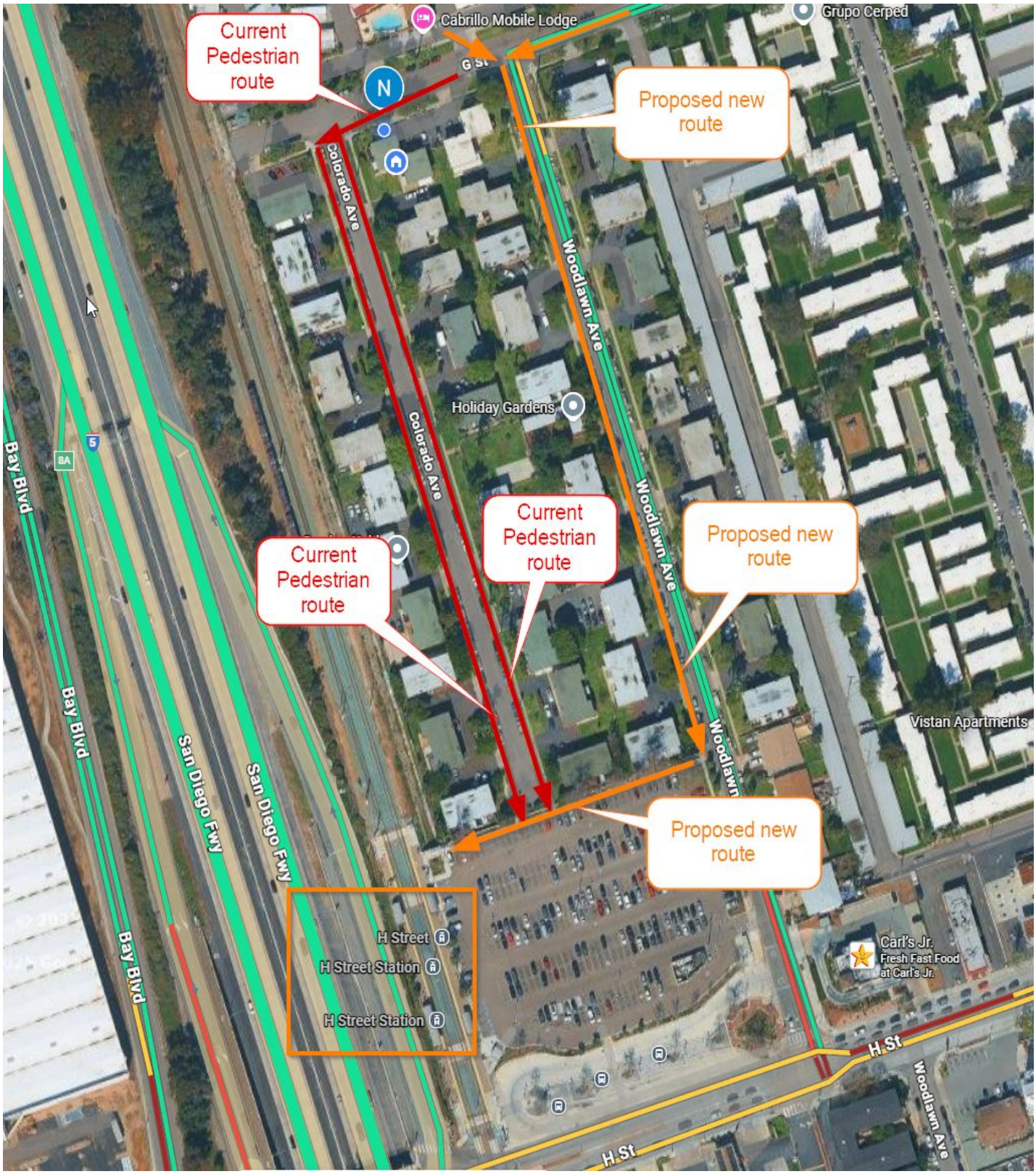
We ask for increased patrols and assistance supporting closure efforts.

Sincerely,

Javier Haros (President)

Colorado Access Closure Current & Proposed Route Photos




Current Pedestrian route
Cabrillo Mobile Lodge
Grupo Cerped
G St
Proposed new route
Colorado Ave
Woodlawn Ave
Holiday Gardens
Colorado Ave
Current Pedestrian route
Current Pedestrian route
Proposed new route
Bay Blvd
Bay Blvd
San Diego Fwy
San Diego Fwy
Vistan Apartments
Woodlawn
Proposed new route
H Street
H Street Station
H Street Station
Carl's Jr.
Fresh Fast Food
at Carl's Jr.
H St
Woodlawn Ave
H St

Colorado Access Closure Safety Incidents Packet








one
Two
3hree
FOUR
Five








PRIVATE
PROPERTY
NO
SOLICITING
LOITERING
TRESPASSING
VIOLATORS WILL
BE PROSECUTED






Earn 6%






*BILS


*BILS
SBIK


FUCK COPS


FUCK COPS








Window01: IP Camera1_Command_Center
2024.05.11 16:58:04
Filter
2024-05-11 16:50:00
2024-05-11 16:51:29
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IP Camera1_Command_Center
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Holiday Gardens Residents

MINUTES

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM

BOARD OF DIRECTORS

May 21, 2026

[Clerk's note: Except where noted, public, staff and board member comments are paraphrased. The full comment can be heard by reviewing the recording at the MTS website.]

1. Roll Call

Chair Whitburn called the Board meeting to order at 9:03 a.m. A roll call sheet listing Board member attendance is attached as Attachment A.

2. Public Comment

Anthony Covarrubias – provided a written statement to the Board prior to the meeting. The written comment is provided in the May 21, 2026 Final Meeting Packet.

Luis Moreles – provided a written statement to the Board prior to the meeting. The written comment is provided in the May 21, 2026 Final Meeting Packet.

CONSENT ITEMS (ITEMS TAKEN OUT OF ORDER):

3. Approval of Minutes
Action would approve the April 16, 2026 Board of Directors meeting minutes.

4. CEO Report

5. Affordable Housing and Sustainable Communities (AHSC) Round 8 Grant Program Award and Project Acceptance – Blue Line Operating and Passenger Shelter Projects
Action would 1) Approve Resolution No. 26-04 authorizing the Chief Executive Officer to accept the Fiscal Year (FY) 2024-2025 AHSC Round 8 Grant via the Strategic Growth Council (SGC) and California Department of Housing and Community Development (HCD) in the amount no less than $12,316,993 to support Blue Line Saturday operations and the installation of passenger shelters; and 2) Authorize the Chief Executive Officer to take all actions necessary to fulfill MTS's obligations under the resolution, including, but not limited to, executing an Indemnification Agreement for the grant funded portion of the project.

6. Affordable Housing and Sustainable Communities (AHSC) Round 9 Grant Program Award and Project Acceptance – Green Line Operating and Passenger Shelter Projects
Action would 1) Approve Resolution No. 26-05 authorizing the Chief Executive Officer to accept the Fiscal Year (FY) 2025-2026 AHSC Round 9 Grant via the Strategic Growth Council (SGC) and California Department of Housing and Community Development (HCD) in the amount no less than $6,714,557 for the purposes of supporting Green Line weekday operations and the installation of passenger shelters; and 2) Authorize the Chief Executive Officer to take all actions necessary to fulfill MTS's obligations under the resolution, including, but not limited to, executing an Indemnification Agreement for the grant funded portion of the project.

7. Operations Budget Status Report for March 2026

8. Fiscal Year (FY) 2026 Transportation Development Act (TDA) Claim Amendment
Action would Directors adopt Resolution Nos. 26-06 and 26-07, approving FY 2026 TDA Article 4.0 and 4.5 claim amendments allocating $134,731,320.00 in TDA revenues for MTS.

DRAFT

9. Rail Seat Upholstery Repair Services - Contract Award
Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. L1709.0-26, with Molina Manufacturing (Molina), in the amount of $787,413.86 (inclusive of CA 7.75% sales tax) for five (5) years, effective June 1, 2026, for the provision of Rail Seat Upholstery Repair Services.

10. SAP S/4HANA Conversion and Migration Services – Contract Award
Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3097.0-25 with Sierra Digital, Inc. (Sierra), to provide SAP S/4HANA conversion and migration professional services in the amount of $2,898,380.00 for a contract period of one (1) year and one (1) month.

11. Bus Part Supplies - Contract Award
Action would authorize the Chief Executive Officer (CEO) to: 1) Execute MTS Doc. No. B0791.0-26, with Cummins Inc., to furnish Bus Part Supplies for five (5) years in an amount not to exceed $6,385,267.04 (inclusive of 7.75% CA sales tax); 2) Execute MTS Doc. No. B0792.0-26, with EW Truck and Truck Equipment Co., Inc. (Group A), to furnish Bus Part Supplies for five (5) years in an amount not to exceed $7,572.08 (inclusive of 7.75% CA sales tax); 3) Execute MTS Doc. No. B0793.0-26, with Mohawk Manufacturing & Supply Co. (Group A), to furnish Bus Part Supplies for five (5) years in an amount not to exceed $1,285,485.43 (inclusive of 7.75% CA sales tax); and 4) Execute MTS Doc. No. B0794.0-26, with Crossline Supply LLC (Group A), to furnish Bus Part Supplies for five (5) years in an amount not to exceed $1,142,503.79 (inclusive of 7.75% CA sales tax).

12. Wireless Voice Communications Network Agreement with San Diego County – Regional Communications System (RCS)
Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. G3219.0-26, with RCS, for up to three hundred and seventy-five (375) radio connections to the RCS network, for a five-year period, on a non-member basis, for up to $1,812,825.00.

13. Investment Report – Quarter Ending March 31, 2026

14. Revisions to San Diego Metropolitan Transit System (MTS) Board Policy No. 41, "Signature Authority"
Action would approve revisions to MTS Board Policy No. 41, "Signature Authority".

15. El Cajon Bus Maintenance Facility (ECBMF) Battery Storage – Contract Amendment
Action would 1) Ratify MTS Doc. No. PWB414.0-25, with Fordyce Construction, Inc. (Fordyce), a Small Business (SB), in the amount of $143,016.00 for the procurement and installation of a pre-manufactured battery storage building at ECBMF; 2) Ratify Amendment No. 1 to MTS Doc. No. PWB414.0-25, with Fordyce, for the addition of explosion-proof electrical fixtures to the battery storage building in the amount of $3,858.92; and 3) Authorize the Chief Executive Officer (CEO) to execute Amendment No. 2 to MTS Doc. No. PWB414.0-25, with Fordyce, for the increased power supply and fire alarm system tie-in of the battery storage building in the amount of $37,969.54.

16. PRONTO Fare Collection System – Contract Amendment
Action would authorize the Chief Executive Officer (CEO) to execute Amendment No. 23 to

MTS Doc. No. G2091.0-18 with Innovations in Transportation, Inc. (INIT) for additional gateway services funding, in the amount of $2,404,338.52.

17. VMware Software Subscription Three-Year Renewal – Contract Award
Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3210.0-26, with New Tech Solutions, Inc. (New Tech), for a three-year renewal of VMware software subscription services, in the amount of $814,876.80.

18. Regional Communications System (RCS) Radios Purchase and Installation – Sole Source Contract Award
Action would authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3198.0-26, with Motorola Solutions, Inc. (Motorola), in the amount of $193,817.97 for a period of three (3) base years.

19. Increased Authorization for Legal Services Contracts to Pay Projected Expenses through December 31, 2026 – Contract Amendment
Action would authorize the Chief Executive Officer (CEO) to execute amendments to eleven (11) legal services contracts increasing the funding authorization by $1,550,000.00 to cover anticipated expenses through December 31, 2026.

20. Iris Rapid Transit Center East and Bus Stops Construction Management Services (CM) – Work Order Amendment
Action would 1) Ratify Work Order Amendment No. WOA2498-CM19.03 under MTS Doc. No. G2498.0-21, with Kleinfelder Construction Services, Inc. (KCS), in the amount of $114,324.83 for additional construction management services through end of May 2026 for the Iris Rapid Transit Center East and Bus Stops Construction Project; and 2) Authorize the Chief Executive Officer (CEO) to execute Work Order Amendment No. WOA2498-CM19.04 under MTS Doc. No. G2498.0-21, with KCS, in the amount of $151,351.67 for additional construction management services through end of June 2026 for the Iris Rapid Transit Center East and Bus Stops Construction Project.

21. Traction Power Substations Replacement (TPSS) – Work Order Amendment
1) Ratify Work Amendment No. WOA-357-AE-31.02, under MTS Doc No. PWL357.0-22 with Chen Ryan Associates (CRA) in the amount of $105,988.60 to incorporate a 3.0MW substation into the design; and 2) Authorize the Chief Executive Officers (CEO) to execute Work Order Amendment No. WOA357-AE-31.04, under MTS Doc No. PWL357.0-22, with CRA in the amount of $81,265.27 for additional funding to provide Capacity Analysis for Phase II.

22. Approval of San Diego Metropolitan Transit System (MTS) Board Policy No. 67, "Technology Disruptions During Board Meetings"
Action would approve Board Policy No. 67, "Technology Disruptions During Board Meetings".

23. Not Being Used

24. 13.23 Mile Fiber Optic Cable Easement (Blue Line Right-of-Way Milepost 1.66 to 15.5)
Action would authorize the Chief Executive Officer (CEO) to execute a proposed Fiber Easement Agreement with Transtelco, Inc. for an up to 40-year easement term.

Public Comment for Item No. 6

Blaer Jessen – provided a verbal statement to the Board during the meeting. Blaer opposed a potential fare increase, stating that it could reduce ridership and create financial hardships for lower-income riders who rely on transit services.

Board Comment:

There were no Board Comments.

Action on Recommended Consent Items, Excluding Consent Item No. 22

Board Member Downey moved to approve Consent Agenda Item Nos. 3 to 21 and 24. Board Member Montgomery Steppe seconded the motion, and the vote was 11 to 0 in favor with Board Member Foster, Board Member Bush, Board Member Vaus and Board Member Moreno absent.

Board Comment for Item No. 22:

Karen Landers, MTS General Counsel, explained that Policy No. 67 was being presented separately because it required a separate Board vote and verbal report. She stated that the policy was required by Senate Bill (SB) 707 and established procedures for technology disruptions affecting remote public participation during Board meetings. She explained that the Board would be required to recess for at least one hour to restore service and, if unsuccessful, could adjourn, extend the recess, or continue the meeting without remote access by roll call vote. She noted that the proposed policy complied with statutory requirements and recommended its approval.

Action on Recommended Consent Item No. 22

Board Member Hall moved to approve Consent Agenda Item No. 22. Board Member McCann seconded the motion, and the vote was 12 to 0 in favor with Board Member Bush, Board Member Vaus and Board Member Moreno absent.

DISCUSSION ITEMS:

25. Fiscal Year (FY) 2027 Operating Budget Discussion (Gordon Meyer)

Gordon Meyer, MTS Manager of Financia Planning, presented on Fiscal Year (FY) 2027 Operating Budget Discussion. He presented on: Budget development process, revenue assumptions – passenger fare revenue, other operating revenue, sales tax revenues, Federal Transit Administration (FTA), Senate Bill (SB) 125, other subsidy revenue and revenue summary, service levels, expense assumptions – personnel, purchased transportation, outside services, energy, other expenses, and expenses summary, consolidated revenues less expenses, preliminary 5-year forecast, financial sustainability, budget development next steps and staff recommendation.

Public Comment

There were no Public Comments.

Board Comment

Vice Chair Goble moved to approve the staff recommendation for the budget as presented, including the Executive Committee's recommendation of a 4% merit pool for non-union staff.

Board Member Dillard inquired whether MTS had explored negotiating with SDG&E to help reduce utility cost in light of the agency's financial challenges. She asked whether such discussions had been considered or pursued as a potential cost saving measure. Mr. Meyer explained that SDG&E rates are established through published rate schedules that apply to different customer classes and are approved by the California Public Utilities Commission. He noted that individual rate reductions were likely not an option but said staff could look into the matter.

Board Member Dillard asked about contingency plans if a proposed ballot measure were unsuccessful or not pursued. She expressed concern about economic conditions and the likelihood of achieving the voter support necessary for new funding measures, and requested information on alternative strategies being considered to address future financial challenges. Ms. Cooney clarified that the discussion pertained only to the FY 2027 budget and was not intended to establish budgets or financial plans for the following five years. Board Member Dillard reiterated her interest in understanding potential contingency plans if future funding initiatives were not pursued or successful. She expressed concern that the Board should be looking ahead to future financial challenges and requested that staff provide additional information on alternative strategies at a later date. Board Member Dillard also asked for examples of how a zero based budgeting approach would be applied in developing the FY 2027 budget. Mr. Meyer explained that the zero based budgeting process requires managers to justify every budgeting line item rather than relying on prior year funding levels. He stated that all expenses, contracts, and budget categories are reviewed individually, and any costs that are no longer necessary are removed, with no automatic approval of previous budget allocations. Board Member Dillard explained that her proposal was intended as a temporary, one year cost containment measure in response to the agency's structural deficit. She emphasized that the proposal was not meant to punish management or administrative employees, whom she describes as valued and essential to agency operations. She stated that one time payments could recognize employee contributions while avoiding permanent increases to structural costs and liabilities, and argued that the approach reflected shared responsibility, accountability, and responsible financial stewardship.

Board Member Hall expressed concern about the agency's long term financial outlook and emphasized the need to begin addressing projected deficits immediately. He stated that relying on future funding assistance was uncertain and argued that cost reductions should be identified and implemented now to achieve a balanced budget and improve the agency's financial stability.

Board Member Mendoza requested clarification on the motion and asked whether the Board was asked to recommend alternative 1 or alternative 2. She sought confirmation as to whether either of the alternatives was included as part of the motion. Vice Chair Goble clarified that his motion pertained to the Executive Committee's recommendation to include a 4% merit pool for non-union staff, at the discretion of the CEO, as reflected in the staff presentation. He further clarified that the budget alternatives presented were not part of his motion.

Board Member Elo-Rivera acknowledged the challenges facing MTS and noted that many transit agencies nationwide were experiencing similar financial pressures. He reiterated his opposition to fare increases, stating that he did not believe all potential revenue opportunities had been explored before asking riders to bear additional costs. Board Member Elo-Rivera expressed concern that the proposed budget relied on fare increases to generate additional revenue and advocated for pursuing alternative revenue sources, including energy partnerships, property leases, and expanded advertising revenue. He emphasized the need to seek greater

contributions from tourism and other non-fare sources before placing additional financial burdens on riders and stated that he would be voting against the budget as presented.

Board Member Montgomery Steppe sought clarification regarding Board Member Dillard's proposal, confirming that it involved a one-time 4% bonus. She also asked procedural questions about the fare increase process and requested clarification on whether the proposed budget assumptions included a fare increase. Ms. Cooney explained that the budget reflected the Board's prior recommendation to SANDAG regarding a regional fare increase and assumed the changes would take effect in October. She noted that if the SANDAG Board did not approve the proposal, staff would return with a revised midyear budget to adjust revenue and expense assumptions accordingly. Board Member Montgomery Steppe noted that she had not been present for the prior fare increase discussion and asked for clarification on the approved proposal. She requested information on the actual fare adjustment and the cost increases that riders would experience.

Mark Olson, MTS Director of Marketing and Communications, explained that the proposed fare increase focused primarily on the adult monthly pass which would increase from $72 to $85 in fall 2026 and then to $95 in fall 2027. He noted that the adult monthly pass generates approximately 88% of MTS fare revenue and was therefore the primary component of the proposal to address the agency's budget challenges. Ms. Cooney noted that MTS had not implemented an increase of the monthly pass price since 2009. Board Member Montgomery Steppe asked whether the fare increase would apply only to monthly passes or if it would include a general fare increase for all passes. Mr. Olson explained that the proposed fare increase would apply to other fare categories in addition to the monthly pass. He stated that one-way fares would increase from $2.50 to $3.00 in phase 1 and to $3.25 in phase 2, senior fares would increase from $1.25 to $1.50 and would remain the same in phase 2, and adult day passes would increase from $6.00 to $7.00. Mr. Olson emphasized that the monthly pass remained the primary revenue driver and noted that fare increases had not occurred since 2009, when the agency faced similar economic challenges.

Board Member Montgomery Steppe asked whether fare increase projection accounted for riders who might no longer be able to afford transit and whether potential ridership declines were reflected in the forecasting model. She also asked whether MTS has evaluated the potential for increased fare evasion as a result of higher fares and whether additional security might be needed to address those impacts. Ms. Cooney explained that SANDAG's model includes projected ridership declines associated with fare increases and that those impacts were incorporated into the budget assumptions. She also noted that MTS anticipated improved fare collection based on recent trends following enhancements to fare enforcement security staffing, which had previously been approved and were partially funded through SB 125 funds. Mr. Thompson responded that no additional security staffing was proposed as a result of the fare increase and that MTS would continue using its existing enforcement resources. Board Member Montgomery Steppe expressed concern about the potential negative impacts of fare increases on riders and transit operations and emphasized the importance of considering those effects when evaluating the agency's financial assumptions.

Board Member Foster reiterated his opposition to the proposed fare increase, expressing concern about its impact on low income riders who rely on transit for essential needs. He emphasized the importance of exploring all available alternatives before increasing costs for vulnerable populations and stated that he would not support the item.

Board Member Downey stated that she would support the budget, explaining that the proposed fare increase and cost reductions demonstrated the agency's efforts to address its financial challenges and could help illustrate the need for future funding measures. She noted that utility rates could not be negotiated individually and suggested that reducing energy consumption could be a potential cost saving strategy. Board Member Downey commended staff for increasing revenue, reducing costs, and improving ridership projections, and expressed support for continued efforts to strengthen the agency's financial position.

Board Member Moreno thanked staff for their work on the budget and noted that she had previously voted against advancing the motion at the Executive Committee. She expressed opposition to the proposed fare increase, citing concerns about its potential impact on ridership and the agency's continued recovery since the pandemic. Board Member Moreno stated that MTS had made progress in rebuilding ridership and that increasing fares could negatively affect riders who depend on transit services. She stated that because the budget assumptions included revenue from future fare increases she would be voting against the item.

Vice Chair Goble expressed support for the budget and noted that inflation had significantly increased operating costs since the last fare increase in 2009. He stated that the proposed fare adjustments did not fully reflect inflationary impacts and emphasized the importance of shared responsibility in addressing the agency's financial challenges. Vice Chair Goble also stated that community outreach indicated many riders preferred modest fare increases over service reductions and said those considerations informed his support for the motion.

Board Member Elo-Rivera clarified that his opposition was not to fare increases in principle, but to implementing them before all possible alternatives had been fully explored. He stated that he could not confidently tell riders that MTS had done everything to avoid increasing fares and urged the agency to be more creative in pursuing non fare revenue opportunities. Board Member Elo-Rivera emphasized that transit riders should be treated as valued constituents and not bear a disproportionate share of the agency's financial challenges. He also expressed concern about relying on a future sales tax measure, noting the uncertainty of future ballot opportunities and the need to consider other funding strategies.

Action Taken

Vice Chair Goble moved to approve the staff recommendation for the FY 2027 draft Operating budget as presented, including the Executive Committee's recommendation of a 4% merit pool for non-union staff. Chair Whitburn seconded the motion, and the vote was 8 opposed (Board Member Fernandez, Board Member Foster, Board Member McCann, Board Member Montgomery Steppe, Board Member Dillard, Board Member Hall, Board Member Elo-Rivera, Board Member Moreno) to 5 in favor (Board Member Downey, Board Member Mendoza, Board Member Leyba-Gonzalez, Chair Whitburn, Vice Chair Goble), with Board Member Bush and Board Member Vaus absent.

Board Comment

Chair Whitburn asked Ms. Cooney how she would like to proceed. Ms. Cooney asked the Board Members who opposed the budget to provide feedback on what changes they would like to see, including potential additions or reductions. She noted that a decision did not need to be made that day but emphasized that the agency must adopt a balanced budget before July 1st. Ms. Cooney explained that staff would need to return in June for a public hearing to approve the budget and added that a special meeting could be held beforehand to further discuss assumption, alternatives, and any budget modification requested by the Board.

Board Member Hall expressed concern about the agency's long term financial outlook and emphasized that action must be taken now to address the projected fiscal cliff. He cautioned against relying on uncertain future funding sources or ballot measures. Board Member Hall stressed the importance of reducing future deficits and questioned what options would remain if action were delayed, warning that continued inaction could eventually lead to service reduction, or other significant impacts to the transit system. He stated that his primary focus was addressing the agency's growing budget shortfalls in a realistic and timely manner.

Board Member Elo-Rivera stated that he would like to see a clearer roadmap for pursuing additional non-fare revenue opportunities before relying further on riders to address the agency's financial challenges. He acknowledged that some potential revenues may be too speculative to include in the budget but emphasized that he has consistently advocated for non-fare revenue solutions. Board Member Elo-Rivera also noted that Elevate SD had been viewed as a key component of the agency's long term financial strategy.

Ms. Cooney clarified that prior to the pandemic, MTS was on a structurally sound financial footing and that the current challenges were largely driven by pandemic-related impacts, inflation, wage adjustments, and affordability concerns. She explained that previous funding discussions focused on expanding transit service throughout the region, whereas the current focus is on maintaining operations. Ms. Cooney noted that staff has been working for several years to identify solutions and emphasized that the immediate goal is to adopt a balanced one year operating budget while continuing to pursue longer term funding opportunities, including state level funding sources and other revenue options.

Board Member Elo-Rivera acknowledged the significant impact of the pandemic on transit agencies and noted that MTS had recovered ridership more successfully than its peers. He expressed concern that riders were being presented with a choice between higher fares and service reductions. Board Member Elo-Rivera reiterated his belief that alternative revenue strategies should have been pursued more aggressively and earlier. While he did not offer a specific budget alternative, he stated that he could be more supportive of the budget if presented with a clear roadmap for generating additional revenue while minimizing impacts on working families.

Board Member Montgomery Steppe supported further discussions on the budget and reiterated her interest in exploring land value capture strategies and other potential revenue options to ensure the Board considers all available alternatives.

Board Member Downey expressed frustration with the discussion, noting that some Board Members had previously opposed employee pay increases to allow time to identify additional savings and revenue opportunities, yet were now also opposing fare increases. Board Member Downey cautioned the Board that failing to generate additional revenue could eventually require difficult decisions, including service reductions or changes to employee compensation agreements. She also stressed the importance of demonstrating shared responsibility when seeking future voter support for funding measures and encouraged Board Members to advocate for additional transit funding opportunities at the regional and state levels.

Board Member Downey expressed concern about the consequences of not adopting a budget and asked what would occur if the Board failed to approve a balanced budget before the end of the fiscal year. Ms. Cooney stated that failing to adopt a balanced budget could jeopardize the agency's eligibility for state funding. Ms. Landers stated that the agency had never faced that situation and that she would research the issue before the June Board meeting. She noted that

without an approved budget, there could be questions about the agency's ability to pay employee wages and process invoices beginning July 1st.

Board Member Elo-Rivera objected to the suggestion that Board Members voting against the budget were not fulfilling their responsibilities, emphasizing that he was representing constituents who depend on transit and cannot afford additional costs. He stated that his responsibility was to ensure riders are asked to pay no more than absolutely necessary and that all reasonable alternatives have been explored first. Board Member Elo-Rivera argued that public transportation has historically been underfunded and that greater urgency is needed in pursuing alternative revenue sources, including tourism related revenues, regional funding strategies, and broader transit advocacy. He acknowledged the complexity of the issue and maintained that additional efforts should be made before placing further financial burdens on riders and stressed that his position reflected the interests of the constituents he represented.

Ms. Cooney encouraged the Board to provide specific feedback that would help staff revise the budget. She explained that if the Board wished to remove the assumed fare increase revenue, staff would need direction on what offsetting changes should be made, such as using reserves, shifting capital funds, adjusting revenue assumptions, or revisiting compensation recommendations for non-represented employees. Ms. Cooney emphasized that the Board was engaged in a budgeting process and that a balanced budget must be approved by July 1st.

Board Member Foster sought clarification on the budget assumptions and asked whether the agency was simultaneously proposing fare increases and reductions in service levels. Ms. Cooney confirmed that the proposed strategy to extend the fiscal cliff included both fare increases and service level reductions. Board Member Foster noted that the budget reflected a 2.4% reduction in fixed-route bus service and referenced additional service changes planned for June. He asked whether the Board had been provided with detailed information regarding those proposed service adjustments. Ms. Cooney explained that staff reviews the service network three times each year and uses data from the Comprehensive Operational Analysis (COA) to evaluate potential adjustments. She noted that only major service changes are brought to the Board, while minor service modifications are implemented administratively. Ms. Cooney added that the June service changes had already been scheduled and incorporated into the proposed budget. Board Member Foster asked whether additional information was available regarding the service changes referenced in the presentation or whether those changes had not yet been determined. He stated that as he was being asked to approve the budget, he wanted to fully understand all proposed service reductions. Ms. Cooney clarified that the service changes referenced in the presentation were for June FY 2026 that had already been planned and scheduled, rather than future service reductions that were still to be determined. Mr. Thompson stated that the changes were available on the MTS website and offered to review the planned changes with the Board.

Board Member Foster requested that staff provide his office with information regarding the planned service changes. He also asked staff to prepare a concise summary of the steps MTS has taken to address its financial challenges prior to proposing fare increases. He stated that having those efforts documented in one place would help Board Members better understand the actions already taken and assist them in evaluating the budget and providing feedback. Ms. Cooney reminded the Board that staff had already presented the measures taken to address the agency's financial challenges and suggested revisiting the presentation. Chair Whitburn asked Board Member Foster if he had any additional comments to share while staff gathered the presentation for review. Board Member Foster requested that staff provide additional

information to the Board so members can review it and provide feedback in advance of the June budget discussions.

Chair Whitburn suggested that staff provide a concise summary of the prior month's presentation, which included discussion of the Board's recommendation to pursue a fare increase and the efforts undertaken to increase revenues and reduce costs. He then asked when SANDAG would make its decision on the recommended fare increases, noting that both MTS and NCTD had voted to recommend the increase but that the final decision rests with SANDAG. Mr. Olson explained that SANDAG's fare increase review process would include two public hearings on June 9, one within the MTS service area and one within the NCTD service area. He stated that the proposal would then be considered by the SANDAG Transportation Committee on June 12, with a final decision anticipated at the committee's July Transportation Committee meeting. Board Member Moreno clarified that the SANDAG Transportation Committee has the authority to make the final decision on the proposed fare increased and noted for the record that she would not be attending the June 12 Transportation Committee meeting. Mr. Olson explained that SANDAG would receive a presentation on the proposed fare increase in June and that the Transportation Committee was expected to make the final decision at its July meeting.

Mr. Olson outlined the following information from last month's Board presentation: Non-Fare operating revenue: historical trends, new and ongoing non-fare revenues, new vehicle wraps, digital kiosks, digital billboards, digital monitors, more station advertising, online merchandise store, more bus shelters and benches with advertising, land management, TOD's, concession kiosk rental, renegotiated contracts, naming rights agreements, employer program outreach, special events, corporate partnerships to grow large event ridership, and other funding mechanisms at the state and local levels.

Ms. Cooney informed the Board of ongoing discussions at the state level regarding proposals to redirect funding from programs that support transit agencies, including the Greenhouse Gas Reduction Fund and Zero-Emission Transit Capital Program. She explained that these changes could significantly impact MTS's capital budget and potentially affect projects that have already been approved and awarded funding. Ms. Cooney noted that transit agencies, housing advocates and state legislators were opposing the proposal and emphasized that, while MTS continues to advocate for additional funding, the agency cannot currently rely on state assistance to resolve the financial challenges. Ms. Cooney stated that she had begun exploring land value capture strategies and consulting with experts in that field. She noted that while those efforts continue, they would take time to develop and would not be available to help balance the FY 2027 budget.

Chair Whitburn summarized the Board's discussion by noting that public transit agencies rely heavily on subsidies and that MTS has prioritized maintaining service levels and keeping fares as low as possible despite ongoing financial challenges. He acknowledged the Board's continued interest in pursuing additional revenue sources but emphasized that the most immediate tools available to balance the budget were fare increases and service reductions. Chair Whitburn noted that several Board Members were reluctant to rely on projected fare increase revenue and suggested using approximately $9M in reserves to balance the budget, with the possibility of restoring those funds if SANDAG ultimately approved the fare increase. He asked whether that approach would be acceptable to the Board.

Board Member Montgomery Steppe stated that she wanted additional time to review potential options before voting on the budget. She explained that Board Members had requested more

information regarding cost-saving measures, revenue opportunities, and long-term strategies and she wanted those ideas to be fully evaluated before making a decision. Board Member Montgomery Steppe acknowledged staff's work to develop the budget, she emphasized the importance of understanding all available options and being able to demonstrate to constituents that every reasonable alternative had been considered before adopting the budget.

Ms. Cooney emphasized that staff has spent years advocating for alternative funding sources and transit funding reforms at the state level. She noted that while efforts such as securing SB 125 funding have been successful, progress is often slowed by competing interests and priorities, and staff will continue pursuing those opportunities.

Board Member Moreno urged Chair Whitburn and Vice Chair Goble to establish a Budget Committee, stating that many of the issues being discussed could have been addressed through that process. She also reiterated her interest in exploring Major Corridor Projects and EMP related funding opportunities as potential revenue sources, noting that while those efforts may be challenging, they should continue to be considered as part of the agency's long-term funding strategy.

Chair Whitburn clarified that the purpose of the discussion was not to adopt a budget but to provide direction to staff on the revenue and cost assumptions that could be used to finalize the FY 2027 budget proposal. He recommended that staff prepare additional information summarizing the actions taken to address the budget gap and respond to questions raised by Board Members. Chair Whitburn also suggested that staff return next month with two budget scenarios, one relying on the proposed fare increase revenue and another using reserves to balance the budget. Mr. Thompson noted that as part of the public hearing process, MTS is required to publish a draft budget at least 15 days before the hearing. He sought clarification on whether staff would be permitted to publish two draft budget scenarios for public review. Ms. Landers clarified that both draft budget scenarios could be published for the public hearing. She explained that the purpose of the publication is to provide the public with the same information the Board will be reviewing and to clearly indicate that the Board will be considering both budget options before making a final decision. Ms. Cooney questioned whether the proposed timeline would provide the Board enough time to review the draft budget and reach a decision before the July 1 deadline. She asked whether an additional Board meeting should be scheduled in June to allow for further discussion and consideration of the budget.

Vice Chair Goble asked Board Members opposing a fare increase to clearly identify what additional information or actions they would need to see before supporting the proposal, so staff would have a clear direction moving forward.

Chair Whitburn asked whether the Board would be prepared to make a budget decision at the next regular meeting after reviewing the requested information and two budget scenarios, or if an additional meeting should be scheduled to allow for further discussion.

Board Member Hall recommended for Board Members to attend the June 11 Executive Committee meeting to continue discussing the budget.

Ms. Landers stated that the Board could potentially convert the June 11 Executive Committee meeting into a Board Workshop to allow additional discussion of the budget before the June 18 public hearing and budget adoption meeting. She explained that the required 15-day public notice could still be provided for the June 18 meeting, while the June 11 Board Workshop could be used to review and discuss the two budget scenarios and any proposed changes. Ms. Landers added that staff would need to ensure sufficient Board Member attendance to establish

a quorum for the workshop. Chair Whitburn sought clarification on whether the proposed June 11 Board Workshop would need to include any additional business or if it could be dedicated solely to discussing the FY 2027 budget. Ms. Cooney stated that the June 11 Board Workshop could be dedicated entirely to the budget discussion. She added that strong Board Member participation would be needed to ensure the discussion reflected the full Board's perspective. Ms. Landers stated that at least eight Board Members would need to attend that workshop to establish a quorum and emphasized that strong participation would help ensure a productive discussion before the June 18 Board meeting.

Chair Whitburn directed staff to schedule a Board Workshop on June 11 and encouraged as many Board Members as possible to attend in preparation for the June 18 Board meeting.

26. Public Hearing: Assembly Bill (AB (Assembly Bill) 2561 (McKinnor): Status of Vacancies, Recruitment and Retention (Thuy Nguyen)

The Board deferred the staff report for this item to the next meeting.

27. Annual Safety Performance Review and Approval of Updated Agency Safety Plan (Fabeann Soberg and Jared Garcia)

The Board deferred the staff report for this item to the next meeting.

28. Fiscal Year (FY) 2026 Q3 Performance Monitoring Report (Brent Boyd and Matthew Grace)

The Board deferred the staff report for this item to the next meeting.

OTHER ITEMS:

29. Chair, Board Member and Chief Executive Officer's (CEO's) Communications

There were no Chair, Board Member, CEO communications.

30. Remainder of Public Comments Not on The Agenda

There were no additional public comments.

ADJOURNMENT

31. Next Meeting Date

The next scheduled Board Meeting Workshop is June 11, 2026 at 9:00 a.m. The next regularly scheduled Board meeting is June 18, 2026 at 9:00 a.m.

32. Adjournment

The meeting was adjourned at 11:40 a.m.

Chairperson
San Diego Metropolitan Transit System

Filed by:

Clerk of the Board
San Diego Metropolitan Transit System

Approved as to form:

General Counsel
San Diego Metropolitan Transit System

Attachment: A. Roll Call Sheet

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS
ROLL CALL

MEETING OF (DATE): May 21, 2026 CALL TO ORDER (TIME): 9:03 a.m.

RECESS: RECONVENE:

CLOSED SESSION: RECONVENE:

ORDINANCES ADOPTED: ADJOURN: 11:40 a.m.

JURISDICTION	BOARD MEMBER		ALTERNATE		PRESENT (TIME ARRIVED)	ABSENT (TIME LEFT)
City of Chula Vista	Cesar Fernandez	☒	Jose Preciado	☐	9:06 a.m.	11:38 a.m.
City of Chula Vista	John McCann	☒	Jose Preciado	☐	9:03 a.m.	11:26 a.m.
City of Coronado	Carrie Downey	☒	Mark Fleming	☐	9:03 a.m.	11:40 a.m.
County of San Diego	Monica Montgomery Steppe	☒	Paloma Aguirre	☐	9:03 a.m.	11:29 a.m.
City of El Cajon	Steve Goble (Vice-Chair)	☒	Phil Ortiz	☐	9:03 a.m.	11:40 a.m.
City of Imperial Beach	Matthew Leyba-Gonzalez	☒	Mariko Nakawatase	☐	9:03 a.m.	11:29 a.m.
City of La Mesa	Patricia Dillard	☒	Mark Arapostathis	☐	9:03 a.m.	10:37 a.m.
City of Lemon Grove	Jennifer Mendoza	☒	Seth Smith	☐	9:03 a.m.	11:40 a.m.
City of National City	Marcus Bush	☐	Jose Rodriguez	☐	ABSENT	ABSENT
City of Poway	Steve Vaus	☐	Peter De Hoff	☐	ABSENT	ABSENT
City of San Diego	Vivian Moreno	☒	Jennifer Campbell	☐	9:09 a.m.	11:40 a.m.
City of San Diego	Sean Elo-Rivera	☒	Joe LaCava	☐	9:03 a.m.	11:40 a.m.
City of San Diego	Todd Gloria	☐	Henry Foster	☒	9:03 a.m.	11:39 a.m.
City of San Diego	Stephen Whitburn (Chair)	☒	Kent Lee	☐	9:03 a.m.	11:40 a.m.
City of Santee	Ronn Hall	☒	Laura Koval John Minto	☐ ☐	9:03 a.m.	11:40 a.m.

SIGNED BY THE CLERK OF THE BOARD: /s/ Lucia Mansour

MINUTES

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM

BOARD OF DIRECTORS

June 11, 2026

[Clerk's note: Except where noted, public, staff and board member comments are paraphrased. The full comment can be heard by reviewing the recording at the MTS website.]

1. Roll Call

Chair Whitburn called the Board meeting to order at 9:04 a.m. A roll call sheet listing Board member attendance is attached as Attachment A.

2. Public Comment

Guthre Leonard – provided a verbal statement to the Board during the meeting. Guthre stated he had lived in San Diego for five years and had taken transit daily. He expressed frustration with how frequently the new announcements asking riders to hold on to the handrails were played at nearly every station in both English and Spanish. Guthre noted that while he understood the need for the announcements due to safety concerns and to avoid litigation, their frequency made riders feel as though they were not being responsible while using transit. He suggested that the announcements be played only during special events.

Blair Beekman – provided a verbal statement to the Board during the meeting. Blair thanked staff for their work and mentioned that he frequently rode transit. He mentioned that he had also used Santa Clara Valley Transportation Authority (VTA) in the past and was very impressed with MTS's night schedule. Blair suggested that the fare increase for disabled riders should be at a smaller rate while also acknowledging that MTS already offered rates for disabled riders.

DISCUSSION ITEMS:

3. Fiscal Year (FY) 2027 Operating Budget Workshop (Mike Thompson)

Mike Thompson, MTS Deputy Chief Financial Officer, presented on Fiscal Year (FY) 2027 Operating Budget Workshop. He presented on: operating budget Board direction, current status, Board direction – February 13, 2025, Board direction – November 20, 2025, structural deficit, budget history, 5-year forecast with fare increase, 5-year forecast without fare increase, industry-wide challenges, fiscal cliff responses at other agencies, new revenue sources, strategy for filling the gap, long-term direction, budget direction for FY2027, and staff recommendation.

Public Comment

Blair Beekman – provided a verbal statement to the Board during the meeting. Blair thanked staff for the presentation and expressed appreciation to Chair Whitburn for introducing the concept of generating non-fare revenue. He stated that the fare increase should be reconsidered, suggesting a smaller increase in the Fall followed by a larger increase later. Blair explained that this approach would allow more time to better understand the subsidy process.

Board Comment

Board Member Elo-Rivera noted that he understands the Board has approved previous motions while also raising concerns about staff relying on a potential sales tax in 2028. He stated that the final portion of the "Current Status" section of the presentation reflects a significant "yes, and".

DRAFT

Board Member Moreno asked if staff could remind the Board who sits on the Ad Hoc Sustainability Transit Committee, and when and where they meet. She also asked if the meetings were accessible by the public. Lucia Mansour, MTS Clerk of the Board, noted the members of the Ad Hoc Sustainability Transit Committee are Chair Whitburn, Vice Chair Goble, Board Member Elo-Rivera, Board Member Downey, Board Member Dillard, Board Member Fernandez, and Board Member Bush. She added that the committee currently meets virtually and the last meeting was held in March 2026. Karen Landers, MTS General Counsel, responded that Ad Hoc Sustainability Committee was not a Brown Act meeting and are not required to be accessible to the public.

Chair Whitburn asked the Board to review Attachment C, “San Diego MTS Budget and Financial Sustainability Actions Since 2020”. He noted that the attachment addresses many questions the Board members have raised with staff in the past.

Board Member Montgomery Steppe asked for clarification on Transportation Development Act (TDA) annual funding. She asked if the estimated $140M annually over the two years was based on work conducted by the state’s Transit Transformation Task Force and how that annual amount was determined. Ms. Cooney responded that the estimate was based on input from lobbyists regarding how the proposal would move through the legislative process. She explained that the concept involves TDA reform, including a proposal to double TDA funding, and implementing new performance metrics to address current statutory requirements and respond to concerns at the state level. Ms. Cooney noted that this approach emerged from discussions of the Transit Transformation Task Force and conversations with legislative staff. She added that the two-year timeframe reflects the typical legislative cycle, explaining that a proposal introduced later in the year would likely take up to two years to pass given its scope. Board Member Montgomery Steppe noted that she has referenced the reform on multiple occasions. She added that she has heard mixed feedback about it but acknowledged that it is a good platform to engage with state legislators. Board Member Montgomery Steppe thanked staff for the briefing she received earlier in the week regarding new revenue sources. She mentioned the need for Board members to actively engage and develop strategies for lobbying state legislators and the federal delegation in order to advance and secure state and federal fundings opportunities.

Vice Chair Goble asked for clarification regarding what amount of local sales tax MTS is authorized to pursue. Mr. Thompson clarified the authorized amount is half a cent. Ms. Landers clarified that if MTS was to put a measure on the ballot it would require a two-thirds vote and explained that a citizen's initiative threshold would instead be 50 percent plus one. She added that MTS’s pending bill, AB 2484, aims to confirm under existing law that a citizen's initiative could proceed on behalf of MTS. Vice Chair Goble asked whether the TDA expansion referenced was to increase the state quarter-cent sales tax to a half-cent, and asked if it would be pursued through legislation or California voter initiative. Mr. Thompson responded that the TDA expansion would increase the sales tax from a quarter-cent to a half-cent and confirmed that it would be pursued as a legislative initiative. Vice Chair Goble asked staff if he was accurately summarizing the last two bullet points of slide 21 that MTS lacked statutory authority to pursue most funding sources, that sales tax appeared to be the clearest and most defined path, and that additional funding mechanisms would require new legislation. Mr. Thompson confirmed that his understanding was correct.

Board Member Nakawatase asked if there were other ways for the public to participate and provide feedback, noting that some of the best ideas often come from constituents. Ms. Cooney responded that the public could participate by attending Board meetings and engaging in various outreach efforts conducted by MTS, such as the Comprehensive Operations Analysis

(COA) and fare change process. She also noted that feedback could be submitted through the MTS website using the MTS OnTrack feature.

Board Member Montgomery Steppe asked for clarification if 1 million “riders” or “rides” would be lost as a result of the proposed fare increase. Mr. Thompson clarified it would be 1 million trips lost.

Vice Chair Goble asked when San Diego Association of Governments (SANDAG) would vote on the proposed fares and whether the item would return to the MTS Board for approval if SANDAG approved the increase. Mr. Thompson responded that SANDAG was scheduled to vote on the fare increases on July 17th. He explained that if the fare increase was approved by SANDAG, the matter would not return to MTS Board for an additional vote. The fare increase would take effect on October 1st and at that point it would be reflected in the budget/revenues collected.

Board Member Elo-Rivera thanked staff for the presentation and stated that the budget discussion was the most robust he had experienced during his six years on the Board. He emphasized his concern for low-income riders who depended on public transit and stated that he wanted to ensure that every possible effort had been made to avoid a fare increase. Board Member Elo-Rivera thanked staff for their efforts in pursuing non-fare revenue opportunities but noted that some initiatives had only advanced after repeated requests from the Board Members. He suggested potential revenue generating opportunities, including station naming rights, bus stop sponsorship, Pronto Card partnerships, advertising, and University and employer pass programs, stating that these efforts should continue to be explored. Board Member Elo-Rivera moved to adopt version 2 of the budget, which excluded projected fare increase revenue, stating that fare revenue should not be included until the necessary approvals had been obtained and noted that the budget could be amended mid-year if the fare increases were ultimately approved and implemented. He also proposed creating a Fare Freeze Program for Vulnerable Low-Income Riders enrolled in CalFresh, Medi-Cal, or CalWORKs who were not already eligible for existing discounted fare programs. Board Member Elo-Rivera additionally requested that staff provide a comprehensive non-fare revenue report during the mid-year budget adjustment process to include updates on current revenue streams, progress metrics, and strategies to reduce reliance on fare revenue and improve the agency’s long term financial sustainability.

Board Member Bush seconded the motion by Board Member Elo-Rivera. He then asked for clarification regarding the Budget Development Committee, asking who served on the committee, when it last met, and whether it was still an existing committee. Board Member Bush asked Board Member Moreno if she had any comments regarding the committee and whether she was still interested in serving on it. Ms. Cooney clarified that the Budget Development Committee and the Executive Committee had been combined into one Committee, noting that the decision was made by the Board because members of the Executive Committee were also serving on the Budget Development Committee. She added that the consolidation was also influenced by Board Member Moreno not being able to Chair the committee and the difficulty in achieving a quorum for meetings. Chair Whitburn added that the Board had solicited volunteers for the Budget Development Committee and that all volunteers except one were already serving on the Executive Committee, which led to the decision to combine both committees into one. Board Member Moreno stated that she had not intended to serve as Chair of the Budget Development Committee and clarified that she did not recall being asked about volunteering or combining both the Budget Development Committee and the Executive Committee. Chair Whitburn clarified that the opportunity to volunteer had been presented during a Board meeting, noting that the Board solicits volunteers for various committees each year and held discussion

on the matter. He added that if the Board wished to separate the Budget Development Committee from the Executive Committee, it could be revisited at the end of the year when committee structures were discussed again. Board Member Bush thanked staff for the clarification and mentioned that structure of the Budget Development Committee is something to be re-evaluated when the time comes.

Board Member Dillard noted that while the Board's focus was on selecting a budget option, she wanted to raise concerns and offer suggestions regardless of the decision made. She stated her support for Board Member Elo-Rivera's motion and discussed the ride survey, emphasizing that many riders, primarily from disadvantaged communities, did not truly have a choice between fare increases and reduced services because they depended on transit to maintain employment. Board Member Dillard addressed accountability and transparency, suggesting that alongside pursuing grants and other funding opportunities, MTS should conduct an internal review of its contracts with transportation providers, including Veolia Transportation, MV Transportation, First Transit, Inc., and Transdev. She expressed concerns about potential gaps in transparency, insufficient communication regarding contractor transitions and policy changes, and limited disclosure of operational, financial, and labor impacts. Board Member Dillard further recommended engaging an independent outside law firm to review the extensive contract that could favor vendors over MTS. She stressed the importance of ensuring labor agreements were properly honored and enforced and called for clearer expectations between the agency and its contractors. She concluded by urging a thorough review of contracts as a way to identify cost savings and ensure decisions were in the best interest of MTS.

Board Member Downey asked for clarification on when the fare increase will go into effect if approved by SANDAG in July. Mr. Thompson responded that there are a number of things that would need to happen if the fare increase is approved by SANDAG. He mentioned the ordinance would have to be updated with the new fare change, and outreach would have to be conducted to let riders know of when the new fare change will take place. Board Member Downey asked for further clarification on the timeline for implementing the fare increase, asking whether it needed to take effect in October or it could be delayed to allow additional time for riders to adjust, as proposed in Board Member Elo-Rivera's motion. Ms. Landers responded that if SANDAG passes the fare increase ordinance, MTS would be required to implement its provisions, which currently specify that the fare increase would take effect on October 1st. She added that while MTS maintains its own fare ordinance, it functions more as a legacy ordinance and typically is updated to remain consistent with SANDAG's ordinance. Ms. Landers noted that she plans to bring MTS's fare ordinance forward to repeal since SANDAG's fare ordinance is the binding ordinance for the region and MTS does not need to keep a duplicate copy.

Board Member Montgomery Steppe noted that ridership in 2019 was approximately 86 million and currently it is approximately 81 million. She asked if SANDAG's projection on how many rides would be lost due to fare increase was approximately 1.8 million and how many riders that equated to. Mr. Thompson responded that based on SANDAG's elasticity model of economic impacts, ridership impact was anticipated to be 1.8 million for a full fiscal year and approximately 1.4 million for the next fiscal year. He stated that staff does not track individual unique riders but instead tracks overall passenger trips. Board Member Montgomery Steppe asked how staff came up with the rider numbers presented to them. She also thanked Board Member Elo-Rivera for his motion and added that she is supportive of his motion. Ms. Cooney clarified that the numbers presented were actual trips and not riders. She confirmed that SANDAG's onboard surveys did capture the average number of trips taken by passengers, however the elasticity model used to assess the impacts of fare changes did not reach that level of detail, making it an imprecise tool for evaluating ridership impacts. Ms. Cooney added that based on past fare changes, ridership initially declined but typically rebounded over time.

Board Member Montgomery Steppe acknowledged the challenging economic climate, noting rising costs and diminishing resources, and emphasized the importance of being prepared. She thanked Board Member Dillard for presenting detailed and thoughtful budget proposals, stressing the need for continued creativity in identifying solutions regardless of whether a ballot measure moves forward. Board Member Montgomery Steppe said she recalls the Budget Development Committee discussions, noting her involvement in the Ad Hoc Committee structure and suggested revisiting bylaws to potentially expand committee participation to include additional representatives, even those not on the full Board. She stated that a separate Budget Development Committee might have allowed for more thorough vetting before issues reached the full Board and emphasized that both perspectives on consolidation could be valid and highlighted the importance of ensuring all members felt heard.

Board Member Montgomery Steppe also mentioned the need for transparency and open communication, noting that despite significant staff effort, there were still concerns about whether Board feedback had been fully acknowledged. She expressed renewed interest in TDA reform, recognized prior efforts and its potential to significantly increase ongoing revenue. Board Member Montgomery Steppe concluded by recommending the creation of an Ad Hoc Committee to strengthen strategic engagement with state and federal representatives, emphasizing the need for coordinated political advocacy to advance funding opportunities. Ms. Cooney noted that the comments raised were timely and shared that she had been preparing to send an email to the Board describing the current moment as an inflection point for the transit industry. She explained that a broad coalition had been formed, including housing advocates, environmental groups, business organizations, and transit agencies, and mentioned a recent media event to support transit featuring legislators involved in the effort including Senator Blakespear. Ms. Cooney stated that she would share a coalition letter that MTS had joined, along with a similar letter signed by legislators, and encouraged Board Members to ask their respective delegation members to support the coalition. She emphasized that building this coalition was essential to generating the political will needed to sustain public transportation across the state. Chair Whitburn added that he is supportive of establishing an Ad Hoc Committee to leverage relationships to advance these conversations in other legislative arenas.

Board Member Hall stated that a sub-committee could also include training for Board Members to better understand key topics such as TDA when engaging with legislators. He emphasized the importance of organizing efforts now so that Board Members could prepare to effectively advocate at both local and state levels in the upcoming years. Board Member Hall asked for clarification on whether implementing a Fare Freeze Program would be legally permissible or if it would raise concerns such as discrimination. Ms. Landers responded that a Fare Freeze Program based on income would not appear to raise discrimination concerns. She noted that based on her initial review, she did not see any immediate legal issues but added that staff would bring any concerns back to the Board if they arose upon further analysis. Board Member Hall stated that his concern with selecting option two of the budget was that it could send a mixed signal to SANDAG, explaining that it suggested both moving forward with and holding off on raising fares. Ms. Cooney clarified that both versions represented assumptions about projected revenue within the budgeting process. She explained that the fare revenue estimates were inherently uncertain and might not materialize as projected, regardless of SANDAG's actions.

Board Member Bush asked if Board Member Elo-Rivera's motion could be displayed so that all members could review its components. He expressed appreciation for Board Member Elo-Rivera and staff for their work, noting the difficulty of balancing rising costs, the need for fare increases, and the economic challenges facing riders. Board Member Bush described the motion as a creative solution, particularly the provisions supporting low-income riders through

programs such as CalFresh, Medi-Cal, and CalWORKs. He noted that while he had initially leaned towards Version 1, he ultimately supported Version 2, explaining that the difference between the options was not substantial, and that Version 2 aligned better with the proposed compromise.

Vice Chair Goble asked whether the proposed Fare Freeze Program would need to be considered by SANDAG as part of the fare ordinance. Ms. Landers responded that MTS would likely have the ability to implement a Fare Freeze Program under the language in the proposed fare ordinance being considered by the Transportation Committee, as it allowed agencies to create certain discount programs similar to the Youth Opportunity Pass. She added that if the comprehensive fare ordinance changes were not approved, staff would need to review the current ordinance to determine whether MTS could proceed independently or if approval from SANDAG would be required. Ms. Cooney clarified that if the fare changes were not approved, then a Fare Freeze Program would not be necessary, as fares for all riders would remain at their current levels. Ms. Landers agreed that this would be the case but clarified that, independent of that scenario, the draft comprehensive fare ordinance included language that would allow MTS and NCTD to individually create certain discount programs. Vice Chair Goble summarized his understanding by stating that the ordinance would set a maximum fare that could be charged, while still allowing agencies the flexibility to offer discounts if they chose to do so. Ms. Cooney noted that a legal opinion could not be provided immediately, as the issue had just been raised. She stated that staff would need to consult with SANDAG and their legal team to determine how the matter would be addressed. Vice Chair Goble asked if the SANDAG fare ordinance did not pass and a Fare Freeze Program were created, how long the freeze would remain in effect. He noted the lack of a defined duration and expressed hesitation due to this uncertainty. Vice Chair Goble also questioned what percentage of current riders would qualify under programs such as CalFresh, Medi-Cal and CalWORKs, and how that would impact projected fare revenue. He emphasized that he did not yet have enough information to fully understand the program's potential effects.

Board Member Elo-Rivera noted that the Board will learn more as the program is implemented. He explained that there is uncertainty regarding the impact the Fare Freeze Program, particularly on how many riders are financially vulnerable, and acknowledged that while the program could reduce revenue, they might also help retain riders and stabilize revenue. Board Member Elo-Rivera emphasized that, despite these unknowns, it is important to move forward with building the program, highlighting the need for a collective effort and a responsible framework established by the Board.

Vice Chair Goble expressed concern that if a large number of existing riders are included it could significantly reduce fare revenue generated from any fare increase. He noted that a decrease in revenue would require either increased subsidies or reduced expenses and cautioned against cutting service for riders that qualified for the program who may be able to pay higher fares. Vice Chair Goble added that these considerations highlighted the need to further refine the program and stated that he remains concerned about potential unintended consequences.

Board Member Elo-Rivera acknowledged the importance of pursuing non-fare revenue, noting that this helps offset potential impacts of this fare program. He provided a rough estimate that for approximately 5,000 riders, the difference between current fares and reduced fares would result in less than $600,000 in lost revenue annually, before accounting for riders who might otherwise stop using the system if the Fare Freeze Program was not implemented. Board Member Elo-Rivera added that the gap appears manageable and could potentially be covered by existing non-fare revenue programs. Ms. Cooney asked Board Member Elo-Rivera for

clarification as to whether he was suggesting that the program be limited to only 5,000 riders. Board Member Elo-Rivera clarified that he was not suggesting assigning a defined limit at this stage. He stated that as a Board, there are ways to establish clearer costs parameters, but emphasized that this should occur only after conducting further analysis to better understand who would benefit from the program. Board Member Elo-Rivera noted that relevant work and data are being developed at the County level, highlighting ongoing efforts led by Board Member Montgomery Steppe. Board Member Montgomery Steppe expressed readiness to partner with MTS to gather the data needed to develop the program, noting uncertainty about available data on the overlap between MTS riders and program participants.

Board Member Moreno thanked staff for the presentation and emphasized that customers should remain at the forefront of decision making. She noted that during COVID-19 she had cautioned against a “death spiral” in ridership and commended staff for preventing that outcome. Board Member Moreno highlighted the importance of maintaining a strong, reliable transit system and noted its role in supporting a world class region. She asked how the agency ranks nationally in terms of budget, ridership, and scale. Mr. Thompson responded that MTS ranks approximately among the top 10 to 12 transit agencies nationally, noting that in terms of budget, the agency ranks lower due to its lower subsidy revenue. Board Member Moreno asked where other transit agencies obtained their additional subsidy revenue. Mr. Thompson explained that other transit agencies rely on dedicated local sales tax measures for funding. He noted that while most agencies receive similar federal subsidies, and within California, TDA funding, larger systems such as Los Angeles, San Francisco, Denver, and Dallas benefit from significant local sales tax revenues that support their operations.

Board Member Moreno stated that public participation was an important part of the decision-making process. She asked staff what public outreach and participation efforts were conducted regarding the proposed fare changes. Mr. Thompson stated that MTS and NCTD conducted outreach during the springtime through online and in-person meetings regarding the proposed fare changes. He added that the outreach results were presented to the Board in March. Board Member Moreno emphasized that the digital divide remained a concern and urged MTS to conduct meaningful, public-facing outreach especially when it comes to ridership impacts such as fare increases, rather than relying primarily on online engagement. She stated that public input should be gathered directly from riders and community members where they live and use transit.

Board Member Moreno reiterated her support for reinstating a dedicated Budget Development Committee, allowing alternate members to serve on committees, and increasing Board involvement in state and federal advocacy efforts. She also thanked Board Member Dillard for helping advance the budget discussion.

Board Member Moreno asked for clarification regarding the fare change process and whether the Board‘s earlier action in February 2025 authorized SANDAG to study fare changes effectively initiated the current fare increase proposal. Ms. Cooney responded that if she understood her question correctly, the Board had directed staff to ask SANDAG in February 2025 to conduct a fare analysis and study on behalf of MTS. Board Member Moreno emphasized that SANDAG ultimately had the authority to decide whether fare increases would be implemented. She stated that when the MTS Board voted in February 2025 to authorize SANDAG to conduct a fare change study, the Board effectively delegated its authority over the fare change process to SANDAG.

Board Member Mendoza stated that the Board ultimately voted and approved the proposed fare change in May [*Clerk’s Note: the Board’s action recommending SANDAG approve the proposed fare change was on April 16, 2026, Agenda Item 14*].

Board Member Moreno sought clarification regarding the fare approval process and asked whether SANDAG ultimately had final authority over the fare increase. Ms. Cooney confirmed that SANDAG maintained authority over the Regional Fare Ordinance. She explained that if SANDAG approved the proposed fare changes, the resulting fare structure would become effective, and MTS would be required to comply with it.

Board Member Bush stated that he had understood that, despite authorizing SANDAG to study potential fare changes in February 2025, the MTS Board would still be required to take an up-or-down vote on the fare ordinance before it could be adopted. Ms. Landers explained that, as a legal matter, SANDAG had the authority to proceed with fare changes regardless of the position taken by MTS or NCTD Boards. However, she noted that as a policy and practical matter, SANDAG had requested formal votes from both boards before its Transportation Committee considered the issue. Ms. Landers added that while SANDAG was not legally required to follow those recommendations, it had indicated that the positions of the MTS and NCTD boards would be taken into consideration during its decision-making process.

Board Member Bush stated that he did not believe the Board‘s February 2025 action to conduct a fare study transferred any additional legal authority to SANDAG. He expressed confusion regarding the assertion that the Board had given up its authority at that time and clarified that he viewed SANDAG’s legal authority and the Board’s policy recommendations as separate issues. Board Member Bush noted that his distinction was between SANDAG’s legal authority to adopt fare changes and the moral practical authority associated with the positions taken by the MTS Board. Ms. Cooney confirmed that no additional authority was given to SANDAG. Board Member Moreno clarified that her concern was not about moral authority, but rather that SANDAG would not have been in a position to vote on the fare changes had the MTS Board not previously requested it conduct the fare study. She then suggested that the Board consider holding an annual retreat similar to SANDAG’s retreat to facilitate broader discussions on agency priorities and governance. She concluded by expressing appreciation for Board Member Elo-Rivera’s motion and stated that she would support it.

Board Member Downey stated that she had been involved in transit policy discussions since 2004 and emphasized her longstanding support for public transportation, including efforts in Coronado to promote transit use and her past support for regional transit funding initiatives. She noted that the SANDAG Transportation Committee was scheduled to consider the fare ordinance the following day, with a second reading planned for July 17, and stressed that the fare increase process was already moving forward. Board Member Downey stated that the Board had previously supported moving the fare change discussion forward and expressed concern about reversing course at this stage. She acknowledged that no one wanted to increase fares for riders who depended on transit but emphasized the agency’s ongoing financial challenges and the need to consider available funding options. Board Member Downey noted that regional leaders had expressed a willingness to explore additional support for MTS and NCTD, including potential adjustments to TransNet funding allocations. She cautioned that declining to move forward with any fare increases could undermine the agency’s position when seeking additional regional assistance. She stated that while many of the proposed recommendations had merit, they could be pursued alongside a budget that included fare increase revenue assumptions. Board Member Downey concluded by expressing support for staff’s recommended budget option and stated that, although she wished discussions and planning had begun earlier, the Board needed to address the current fiscal realities facing the agency.

Board Member Elo-Rivera stated that he could not support including fare increase revenue in the budget until protections for vulnerable riders were established. He noted that Board

Members had previously expressed frustration that recommendations and policy initiatives were not always implemented with the urgency requested, and he did not want to assume fare increase revenue before assistance programs were in place. Board Member Elo-Rivera stated that the Board could adopt a mid-year budget adjustment if fare increases were approved and implemented. He explained that once a Fare Freeze Program had been created and vulnerable riders were enrolled and protected, he would support a budget adjustment that included the additional fare revenue. Board Member Elo-Rivera emphasized that his priority was ensuring protections were established before fare increases affected riders. He stated that many vulnerable residents were already facing economic hardship and potential reductions in federal assistance programs, and he believed MTS had a responsibility to provide support before relying on increased fare revenue.

Ms. Landers clarified that the primary difference between Version 1 and Version 2 of the budget was the assumption regarding future fare revenue. She explained that Version 1 assumed the proposed fare changes would be approved by SANDAG and implemented in October, allowing MTS to begin receiving the additional fare revenue. She noted that if SANDAG ultimately did not approve the fare changes, the Board could address the resulting revenue shortfall through a mid-year budget adjustment or earlier if necessary, including the use of additional SB 125 reserve funds.

Board Member Elo-Rivera stated that his support for Version 2 was based on both fiscal responsibility and the need to protect vulnerable riders. He explained that he did not believe it was prudent to budget for revenue that had not yet been approved by the agency responsible for authorizing the fare increase. Board Member Elo-Rivera acknowledge that budgets rely on projections, he distinguished between forecasting based on ridership data and assuming revenue from a fare increase that had not yet been approved by SANDAG. He reiterated that his primary concern was ensuring protections for vulnerable riders were established before fare increases took effect. He stated that if the proposed protections were not adopted, he intended to oppose the fare increase at the SANDAG level. Board Member Elo-Rivera stated that if the Fare Freeze Program moved forward, he would support the fare increase because he would be confident that vulnerable riders were being protected. He emphasized that his position had remained consistent throughout the process and was focused on balancing the agency's financial needs with protections for riders most affected by fare increases.

Board Member Bush stated that, as the seconder of the motion, his primary focus was creating a Fare Freeze Program for vulnerable riders. He emphasized that the discussion was not about the fare ordinance itself, as the Board had already acted on that matter, but rather about using more conservative budget assumptions. Board Member Bush stated that adopting Version 2 would allow staff time to analyze the potential impact of a Fare Freeze Program, refine revenue projections, and return with updated figures through a mid-year budget adjustment if the fare increase was ultimately approved. He reiterated that the goal was to create protections for vulnerable riders while ensuring the budget reflected accurate revenue assumptions. Ms. Cooney stated that staff would not have enough time before the next Board meeting to determine the full cost or scope of the proposed Fare Freeze Program. She explained that staff would begin developing the program immediately, but obtaining and analyzing the necessary data would take additional time. Board Member Bush requested that staff begin developing the proposed Fare Freeze Program and provide preliminary estimates if possible. He acknowledged that refined cost and ridership projections would take additional time but stated that those details could be developed later and incorporated into a future mid-year budget adjustment if the fare increase was approved. Ms. Cooney stated that staff could commit to refining the proposed Fare Freeze Program in time for a mid-year budget adjustment and would work toward bringing the program to the Board for approval as early as September. However, she clarified that staff

would not be able to complete the analysis and develop the program in time for the following week's Board meeting.

Board Member Bush requested that staff prioritize developing an estimate of the proposed Fare Freeze Program before the next Board meeting. He acknowledged that a refined analysis would not be possible within the available timeframe but expressed confidence that staff could provide additional data and preliminary projections to help inform the Board's discussion and future budget decisions.

Ms. Landers sought clarification regarding the motion and explained that the budget recommendation and the Fare Freeze Program were separate actions. She stated that the budget would return to the Board for approval at the following week's meeting, while the motion would immediately direct staff to develop and implement a Fare Freeze Program. She noted that staff would subsequently return to the Board with updates on the program's design, costs, and implementation details, and the Board would retain the ability to make changes at that time. Ms. Landers further explained that the proposed budget did not account for the potential financial impact of the Fare Freeze Program because those costs were not yet known. She stated that staff would evaluate those impacts and incorporate them into a future mid-year or earlier budget adjustment once the fare change decision and program details were finalized.

Board Member Mendoza stated that she had initially been inclined to support Version 1 of the budget but had become supportive of Board Member Elo-Rivera's motion. She expressed confidence that adopting the motion would not send the wrong message to SANDAG and noted that several Board Members also served on the SANDAG Transportation Committee. Board Member Mendoza stated that the proposed Fare Freeze Program addressed many concerns regarding the impact of fare increases on vulnerable and low-income riders. She also noted that, despite the extensive discussions and public meetings already held on the issue, she appreciated reviewing the side-by-side comparison of Versions 1 and 2 of the budget and understanding their potential impacts on future budgets. She concluded by expressing her support for the motion.

Vice Chair Goble stated that he could not support the motion as written because there were too many unknowns regarding the Fare Freeze Program, including its cost, duration, eligibility, and budget impact. He suggested that staff first develop and evaluate the program before implementation and noted that the County might be able to help offset associated costs. Board Member Elo-Rivera acknowledged concerns about directing staff to both develop and implement the Fare Freeze Program without additional Board discussion. He suggested modifying the motion so that staff would develop the program and return to the Board before implementation. He then asked whether that approach would address concerns and make the motion more acceptable.

Vice Chair Goble stated that he still needed additional information regarding the scope and financial impact of the proposed Fare Freeze Program. He questioned how many riders would qualify for the program and whether the resulting budget impact would be significant, noting that the cost could vary substantially depending on participation levels. Ms. Cooney stated that staff could further develop the proposed Fare Freeze Program and return to the Board, likely in September, with additional details. She noted that many low-income riders already receive discounted fares through existing programs and may not qualify for the fare freeze. Ms. Cooney added that while staff could not yet estimate participation or costs, the program could be tailored to assist vulnerable riders who are not already covered by existing assistance programs.

Board Member Montgomery Steppe stated that she was willing to continue exploring the proposal as the program was developed if the motion passed. She clarified that programs such

as CalFresh, Medi-Cal, and CalWORKs were state-funded programs administered by the County, not County-funded programs. Board Member Montgomery Steppe added that the County was working to support individuals who rely on these programs because they contribute significantly to the economy and community, and she agreed that further discussions on the proposal should continue.

Chair Whitburn clarified that the Board was not approving a budget during the workshop, but rather providing direction to staff regarding the recommendation that would be brought forward for consideration at the following week's Board meeting. He stated that, if the motion passed, he hoped it would indicate general agreement with the proposed budget recommendation and reduce the need for significant additional motions at the next meeting. Chair Whitburn emphasized that the motion was not a vote on the fare increase itself, as that decision ultimately rested with SANDAG. He explained that the motion would direct staff to bring forward a budget that did not assume revenue from a future fare increase and noted that such revenue could be incorporated later through a budget adjustment if the fare increase was approved. Chair Whitburn requested that staff return to the Board in September with details regarding the proposed Fare Freeze Program and notify the Board of any major policy considerations that arose during its development. He also asked staff whether they had sufficient direction regarding the non-fare revenue reporting requirements included in the motion. Ms. Cooney confirmed that staff had sufficient direction regarding the non-fare revenue reporting requirements included in the motion.

Board Member Bush stated that the motion could actually increase support for a fare increase because it included protections for vulnerable riders. He noted that while the motion was not directly about the fare ordinance, the proposed Fare Freeze Program made him more supportive of a future fare increase by providing a stronger safety net for riders most affected by higher fares.

Board Member Downey stated that the proposed Fare Freeze Program could be pursued under either budget option and argued that Version 1 was more consistent with the Board’s previous actions supporting the fare increase process. She noted that many riders already received discounted fares through existing programs and questioned how many additional riders would benefit from the proposed program. Board Member Downey expressed concern that selecting Version 2 could send the wrong message regarding the Board’s support for the fare increase and reiterated her preference for Version 1. She concluded by stating that she wanted the Board to move forward with adopting a budget.

Action Taken

Board Member Elo-Rivera moved to 1) Support Version 2 of the Proposed Budget 2027 MTS Operating Budget, which does not include increased revenue assumptions from the proposed fare changes, 2) Create a Fare Freeze Program for Vulnerable Low-Income Riders by directing MTS staff to develop and implement a Fare Freeze Program that maintains current fare levels for riders who demonstrate active enrollment in any of the following public assistance programs: CalFresh, Medi-Cal, and CalWorks. This program shall apply to individuals who are not already covered under existing MTS discount or reduced fare programs, and 3) Request a non-Fare Revenue Report at Mid-Year Budget Adjustment. Direct MTS staff to prepare and present a detailed Non-Fare Revenue Report at the time of the mid-year budget adjustment. This report shall include: a comprehensive status update on current non-fare revenue streams; outlining ongoing progress metrics on non-fare revenue targets and timelines; a forward-looking strategy outlining initiatives MTS is actively exploring or pursuing to grow non-fare revenue, reduce fare-revenue dependency, and improve the long-term financial sustainability of the system. Board Member Bush seconded the motion, and the vote was 8 in favor (Board Member Fernandez,

Board Member Mendoza, Board Member Bush, Board Member Montgomery Steppe, Board Member Dillard, Board Member Elo-Rivera, Chair Whitburn, Board Member Moreno) to 4 opposed (Board Member Downey, Board Member Nakawatase, Board Member Hall, Vice Chair Goble) and with Board Member Foster, Board Member McCann and Board Member Vaus absent.

OTHER ITEMS:

4. Chair, Board Member and Chief Executive Officer's (CEO's) Communications

Board Member Downey thanked Ms. Cooney and MTS staff for their continued partnership in supporting Coronado's free summer shuttle program. She noted that the program had recently celebrated its 11th year and stated that MTS had worked with the City each year to encourage transit use. Board Member Downey highlighted the benefit the shuttle provided to residents, military families, and students, and expressed appreciation for MTS staff who participated in the program's kickoff event.

Board Member Hall announced that Santee's summer concert series would kick off that evening with a country music performance and a drone show scheduled for 8:00 p.m.

Board Member Dillard reminded attendees that the City of La Mesa would be hosting a Flag Day celebration on Saturday morning beginning at 9:00 a.m. and invited those interested to attend the event.

5. Remainder of Public Comments Not on The Agenda

There were no additional public comments.

ADJOURNMENT

6. Next Meeting Date

The next regularly scheduled Board meeting is June 18, 2026 at 9:00 a.m.

7. Adjournment

The meeting was adjourned at 11:19 a.m.

Chairperson
San Diego Metropolitan Transit System

Filed by:

Clerk of the Board
San Diego Metropolitan Transit System

Approved as to form:

General Counsel
San Diego Metropolitan Transit System

Attachment: A. Roll Call Sheet

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS
ROLL CALL

MEETING OF (DATE): June 11, 2026 CALL TO ORDER (TIME): 9:04 a.m.

RECESS: _____ RECONVENE: _____

CLOSED SESSION: _____ RECONVENE: _____

ORDINANCES ADOPTED: _____ ADJOURN: 11:19 a.m.

JURISDICTION	BOARD MEMBER		ALTERNATE		PRESENT (TIME ARRIVED)	ABSENT (TIME LEFT)
City of Chula Vista	Cesar Fernandez	☒	Jose Preciado	☐	9:04 a.m.	11:19 a.m.
City of Chula Vista	John McCann	☒	Jose Preciado	☐	9:04 a.m.	10:38 a.m.
City of Coronado	Carrie Downey	☒	Mark Fleming	☐	9:04 a.m.	11:19 a.m.
County of San Diego	Monica Montgomery Steppe	☒	Paloma Aguirre	☐	9:04 a.m.	11:19 a.m.
City of El Cajon	Steve Goble (Vice-Chair)	☒	Phil Ortiz	☐	9:04 a.m.	11:19 a.m.
City of Imperial Beach	Matthew Leyba-Gonzalez	☐	Mariko Nakawatase	☒	9:04 a.m.	11:19 a.m.
City of La Mesa	Patricia Dillard	☒	Mark Arapostathis	☐	9:04 a.m.	11:19 a.m.
City of Lemon Grove	Jennifer Mendoza	☒	Seth Smith	☐	9:04 a.m.	11:19 a.m.
City of National City	Marcus Bush	☒	Jose Rodriguez	☐	9:14 a.m.	11:19 a.m.
City of Poway	Steve Vaus	☐	Peter De Hoff	☐	ABSENT	ABSENT
City of San Diego	Vivian Moreno	☒	Jennifer Campbell	☐	9:04 a.m.	11:19 a.m.
City of San Diego	Sean Elo-Rivera	☒	Joe LaCava	☐	9:06 a.m.	11:19 a.m.
City of San Diego	Todd Gloria	☐	Henry Foster	☐	ABSENT	ABSENT
City of San Diego	Stephen Whitburn (Chair)	☒	Kent Lee	☐	9:04 a.m.	11:19 a.m.
City of Santee	Ronn Hall	☒	Laura Koval John Minto	☐ ☐	9:04 a.m.	11:19 a.m.

SIGNED BY THE CLERK OF THE BOARD: /s/ Lucia Mansour

Metropolitan Transit System

Agenda Item No. 04

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Chief Executive Officer's (CEO) Report

INFORMATIONAL

In accordance with Board Policy No. 52, "Procurement of Goods and Services", attached are listings of contracts, purchase orders, and work orders that have been approved within the CEO's authority (up to and including $150,000) for the period May 14, 2026 – June 10, 2026.

CEO TRAVEL REPORT (since last Board meeting)

N/A

BOARD MEMBER TRAVEL REPORT (since last Board meeting)

N/A

Attachments: A. Purchase Orders
B. Expense and Revenue Contracts

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4400003861	5/15/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 101.50	$ -	$ -
4400003862	5/15/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 310.69	$ -	$ -
4400003863	5/15/2026	Mcmaster-Carr Supply Co		G130-SHOP TOOLS	$ 57.85	$ -	$ -
4400003864	5/19/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 77.74	$ -	$ -
4400003865	5/20/2026	W.W. Grainger Inc		G190-SAFETY/MED SUPPLIES	$ 107.78	$ -	$ -
4400003866	5/20/2026	W.W. Grainger Inc		G130-SHOP TOOLS	$ 93.48	$ -	$ -
4400003867	5/20/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 149.03	$ -	$ -
4400003868	5/21/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 90.15	$ -	$ -
4400003869	5/26/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 691.93	$ -	$ -
4400003870	5/27/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 362.39	$ -	$ -
4400003871	5/28/2026	Mcmaster-Carr Supply Co		G150-FASTENERS	$ 70.57	$ -	$ -
4400003872	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 97.68	$ -	$ -
4400003873	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 323.24	$ -	$ -
4400003874	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 54.12	$ -	$ -
4400003875	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 103.67	$ -	$ -
4400003876	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 43.35	$ -	$ -
4400003877	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 140.46	$ -	$ -
4400003878	5/29/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 72.84	$ -	$ -
4400003879	5/29/2026	W.W. Grainger Inc		G130-SHOP TOOLS	$ 369.66	$ -	$ -
4400003880	5/29/2026	Mcmaster-Carr Supply Co		R230-RAIL/LRV MECHANICAL	$ 178.29	$ -	$ -
4400003881	6/1/2026	Mcmaster-Carr Supply Co		G270-ELECTRICAL/LIGHTING	$ 141.91	$ -	$ -
4400003882	6/3/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 117.92	$ -	$ -
4400003883	6/3/2026	Mcmaster-Carr Supply Co		M180-STATION ELECTRICAL	$ 375.28	$ -	$ -
4400003884	6/3/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 1,388.46	$ -	$ -
4400003885	6/3/2026	Mcmaster-Carr Supply Co		R230-RAIL/LRV MECHANICAL	$ 256.79	$ -	$ -
4400003886	6/4/2026	W.W. Grainger Inc		G130-SHOP TOOLS	$ 199.38	$ -	$ -
4400003887	6/4/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 221.95	$ -	$ -
4400003888	6/5/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 331.70	$ -	$ -
4400003889	6/5/2026	W.W. Grainger Inc		G190-SAFETY/MED SUPPLIES	$ 192.17	$ -	$ -
4400003890	6/5/2026	W.W. Grainger Inc		G180-JANITORIAL SUPPLIES	$ 702.36	$ -	$ -
4400003891	6/8/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 130.28	$ -	$ -
4400003892	6/8/2026	W.W. Grainger Inc		M180-STATION ELECTRICAL	$ 1,063.27	$ -	$ -
4400003893	6/8/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 97.05	$ -	$ -
4400003894	6/8/2026	ODP Business Solutions, LLC		G200-OFFICE SUPPLIES	$ 300.81	$ -	$ -
4400003895	6/9/2026	W.W. Grainger Inc		G130-SHOP TOOLS	$ 387.86	$ -	$ -
4400003896	6/9/2026	W.W. Grainger Inc		M140-WAYSIDE SIGNALS	$ 532.61	$ -	$ -
4400003897	6/9/2026	Mcmaster-Carr Supply Co		M180-STATION ELECTRICAL	$ 555.84	$ -	$ -
4400003898	6/10/2026	Mcmaster-Carr Supply Co		G140-SHOP SUPPLIES	$ 63.33	$ -	$ -
4400003899	6/10/2026	W.W. Grainger Inc		G150-FASTENERS	$ 605.78	$ -	$ -
4500075339	5/14/2026	Transit Holdings Inc		B130-BUS BODY	$ 6,968.54	$ -	$ -
4500075340	5/14/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 90.51	$ -	$ -
4500075341	5/14/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 1,834.31	$ -	$ -
4500075342	5/14/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 3,814.51	$ -	$ -
4500075343	5/14/2026	Signal Hill Auto Enterprises, Inc.		G180-JANITORIAL SUPPLIES	$ 701.46	$ -	$ -
4500075344	5/14/2026	Vehicle Maintenance Program, Inc.	Woman Owned Business	B120-BUS MECHANICAL PARTS	$ 1,929.52	$ -	$ -
4500075345	5/14/2026	W.W. Grainger Inc		M110-SUB STATION	$ 1,113.66	$ -	$ -
4500075346	5/14/2026	Waxie's Enterprises, LLC		G140-SHOP SUPPLIES	$ 169.39	$ -	$ -
4500075347	5/14/2026	Genfare, LLC		B250-BUS REPAIR PARTS	$ 2,375.51	$ -	$ -
4500075348	5/14/2026	Harbor Diesel & Equipment, Inc		B250-BUS REPAIR PARTS	$ 4,969.94	$ -	$ -
4500075349	5/14/2026	Reid and Clark Screen Arts Co		P210-NON-REV VEH REPAIRS	$ 1,363.79	$ -	$ -
4500075350	5/14/2026	Newark Corporation		R220-RAIL/LRV TRUCKS	$ 712.54	$ -	$ -
4500075351	5/14/2026	Professional Contractors Supplies		G140-SHOP SUPPLIES	$ 1,116.60	$ -	$ -
4500075352	5/14/2026	Harbor Diesel & Equipment, Inc		B200-BUS PWR TRAIN EQUIP	$ 22,425.84	$ -	$ -
4500075353	5/14/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 3,881.16	$ -	$ -
4500075354	5/14/2026	General Signals Inc		M130-CROSSING MECHANISM	$ 4,353.32	$ -	$ -
4500075355	5/14/2026	Muncie Reclamation and Supply Co		B120-BUS MECHANICAL PARTS	$ 594.70	$ -	$ -
4500075356	5/14/2026	The Sherwin-Williams Company		G160-PAINTS & CHEMICALS	$ 487.58	$ -	$ -
4500075357	5/14/2026	Transit Holdings Inc		B130-BUS BODY	$ 2,097.00	$ -	$ -
4500075358	5/14/2026	Prochem Specialty Products Inc	Small Business	G180-JANITORIAL SUPPLIES	$ 977.83	$ -	$ -
4500075359	5/14/2026	National Carwash Solutions Inc		G160-PAINTS & CHEMICALS	$ 807.19	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075360	5/14/2026	Winzer Franchise Company		G150-FASTENERS	$ 65.73	$ -	$ -
4500075361	5/14/2026	Kurt Morgan		G200-OFFICE SUPPLIES	$ 359.55	$ -	$ -
4500075362	5/14/2026	Maintex Inc		G170-LUBRICANTS	$ 850.71	$ -	$ -
4500075363	5/14/2026	Motion Industries, Inc.		B120-BUS MECHANICAL PARTS	$ 132.80	$ -	$ -
4500075364	5/14/2026	Midwest Motor Supply Co. Inc		G140-SHOP SUPPLIES	$ 194.98	$ -	$ -
4500075365	5/14/2026	ISC Applied Systems Corp		R150-RAIL/LRV COMM EQUIP	$ 1,050.57	$ -	$ -
4500075366	5/14/2026	Gillig LLC		B120-BUS MECHANICAL PARTS	$ 987.30	$ -	$ -
4500075367	5/14/2026	Mohawk Mfg & Supply Co		B120-BUS MECHANICAL PARTS	$ 231.68	$ -	$ -
4500075368	5/14/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 118.05	$ -	$ -
4500075369	5/14/2026	Trapeze Software Group Inc		I140-IT CAPITAL SOFTWARE	$ 65,932.00	$ -	$ -
4500075370	5/14/2026	Rush Truck Centers of California		B200-BUS PWR TRAIN EQUIP	$ 25.59	$ -	$ -
4500075371	5/14/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 1,064.01	$ -	$ -
4500075372	5/14/2026	B & S Graphics Inc		B130-BUS BODY	$ 278.00	$ -	$ -
4500075373	5/14/2026	Vern Rose Inc		G140-SHOP SUPPLIES	$ 137.92	$ -	$ -
4500075374	5/14/2026	Wesco Distribution Inc		F110-SHOP/BLDG MACHINERY	$ 315.17	$ -	$ -
4500075375	5/15/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 122.19	$ -	$ -
4500075376	5/15/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 3,236.86	$ -	$ -
4500075377	5/15/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 393.07	$ -	$ -
4500075378	5/15/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 230.78	$ -	$ -
4500075379	5/15/2026	Transit Holdings Inc		B130-BUS BODY	$ 323.24	$ -	$ -
4500075380	5/15/2026	Hitachi Rail STS USA, Inc.		M130-CROSSING MECHANISM	$ 7,500.04	$ -	$ -
4500075381	5/15/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 1,169.30	$ -	$ -
4500075382	5/15/2026	SiteOne Landscape Supply Holding		F190-LANDSCAPING MAT'LS	$ 967.86	$ -	$ -
4500075383	5/15/2026	CDW LLC		I110-INFORMATION TECH	$ 1,811.33	$ -	$ -
4500075384	5/15/2026	M Power Truck & Diesel		A140-AUTO/TRUCK REPAIR	$ 411.54	$ -	$ -
4500075386	5/15/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 342.77	$ -	$ -
4500075387	5/15/2026	San Diego Friction Products, Inc.		F110-SHOP/BLDG MACHINERY	$ 2,874.84	$ -	$ -
4500075388	5/15/2026	Home Depot USA Inc		F110-SHOP/BLDG MACHINERY	$ 462.19	$ -	$ -
4500075389	5/15/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 783.38	$ -	$ -
4500075390	5/15/2026	Home Depot USA Inc		G110-BUS/TROLLEY SIGNAGE	$ 119.74	$ -	$ -
4500075392	5/15/2026	Home Depot USA Inc		F190-LANDSCAPING MAT'LS	$ 1,154.01	$ -	$ -
4500075393	5/15/2026	SEFAC USA, Inc.		F110-SHOP/BLDG MACHINERY	$ 805.00	$ -	$ -
4500075394	5/15/2026	Home Depot USA Inc		F110-SHOP/BLDG MACHINERY	$ 3,903.79	$ -	$ -
4500075395	5/15/2026	Sid Tool Co., Inc.		G130-SHOP TOOLS	$ 329.80	$ -	$ -
4500075396	5/15/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 29.57	$ -	$ -
4500075397	5/15/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 1,278.95	$ -	$ -
4500075398	5/15/2026	Don Oleson Inc	Small Business	G140-SHOP SUPPLIES	$ 189.64	$ -	$ -
4500075399	5/15/2026	CDW LLC		I110-INFORMATION TECH	$ 3,931.85	$ -	$ -
4500075400	5/17/2026	Burke Craghead		P540-MAINTENANCE TRAINING	$ 8,430.00	$ -	$ -
4500075401	5/18/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 164.47	$ -	$ -
4500075402	5/18/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 380.83	$ -	$ -
4500075403	5/18/2026	Transit Holdings Inc		B130-BUS BODY	$ 5,223.38	$ -	$ -
4500075404	5/18/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 507.83	$ -	$ -
4500075405	5/18/2026	Clarran Inc.	DBE	G130-SHOP TOOLS	$ 107.28	$ -	$ -
4500075406	5/18/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 871.63	$ -	$ -
4500075407	5/18/2026	Transit Holdings Inc		B130-BUS BODY	$ 3,684.42	$ -	$ -
4500075408	5/18/2026	San Diego Friction Products, Inc.		B120-BUS MECHANICAL PARTS	$ 2,122.80	$ -	$ -
4500075409	5/18/2026	General Signals Inc		M130-CROSSING MECHANISM	$ 7,094.51	$ -	$ -
4500075410	5/18/2026	Metropolitan Council		R150-RAIL/LRV COMM EQUIP	$ 7,786.02	$ -	$ -
4500075411	5/18/2026	Maxwell Industries R&D, Inc.		R130-RAIL/LRV COUPLER	$ 42,824.16	$ -	$ -
4500075412	5/18/2026	ISC Applied Systems Corp		R150-RAIL/LRV COMM EQUIP	$ 23,597.26	$ -	$ -
4500075413	5/18/2026	Romaine Electric Corporation		B160-BUS ELECTRICAL	$ 7,645.20	$ -	$ -
4500075414	5/18/2026	Steven R Timme		G230-PRINTED MATERIALS	$ 434.85	$ -	$ -
4500075415	5/18/2026	Joseph Jarjura		P490-MANAGEMENT TRAINING	$ 972.00	$ -	$ -
4500075416	5/18/2026	Sportworks Global LLC		B250-BUS REPAIR PARTS	$ 967.60	$ -	$ -
4500075417	5/18/2026	CDW LLC		I110-INFORMATION TECH	$ 4,999.44	$ -	$ -
4500075418	5/18/2026	Carey L. Brooks		P490-MANAGEMENT TRAINING	$ 972.00	$ -	$ -
4500075419	5/18/2026	TK Services Inc		R170-RAIL/LRV HVAC	$ 18,050.55	$ -	$ -
4500075421	5/18/2026	Dimensional Silk Screen Inc		G230-PRINTED MATERIALS	$ 263.99	$ -	$ -
4500075422	5/18/2026	Uline Inc		F110-SHOP/BLDG MACHINERY	$ 646.74	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075423	5/18/2026	Siemens Mobility, Inc.		M180-STATION ELECTRICAL	$ 1,707.08	$ -	$ -
4500075424	5/18/2026	2BFueled LLC		A120-AUTO/TRUCK GASOLINE	$ 20,460.12	$ -	$ -
4500075425	5/18/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 3,994.86	$ -	$ -
4500075426	5/18/2026	Merrimac Petroleum Inc	Woman Owned Business	A120-AUTO/TRUCK GASOLINE	$ 3,532.55	$ -	$ 29,998.27
4500075427	5/18/2026	ABC General Contractor, Inc.		C110-GENERAL CONTRACTORS	$ 60,431.68	$ -	$ -
4500075428	5/18/2026	San Diego Compressed Air Power LLC		F110-SHOP/BLDG MACHINERY	$ 1,329.36	$ -	$ -
4500075429	5/18/2026	Siemens Mobility, Inc.		R190-RAIL/LRV PANTOGRAPH	$ 762.87	$ -	$ -
4500075430	5/18/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 2,074.51	$ -	$ -
4500075431	5/18/2026	Siemens Mobility, Inc.		B250-BUS REPAIR PARTS	$ 322.18	$ -	$ -
4500075432	5/18/2026	Cummins Inc		B250-BUS REPAIR PARTS	$ 128.89	$ -	$ -
4500075433	5/18/2026	Gillig LLC		B250-BUS REPAIR PARTS	$ 4,315.15	$ -	$ -
4500075434	5/18/2026	Dimensional Silk Screen Inc		G230-PRINTED MATERIALS	$ 1,296.41	$ -	$ -
4500075435	5/19/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 2,461.85	$ -	$ -
4500075436	5/19/2026	Transit Holdings Inc		B160-BUS ELECTRICAL	$ 1,325.71	$ -	$ -
4500075437	5/19/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 108.01	$ -	$ -
4500075438	5/19/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 5,704.59	$ -	$ -
4500075439	5/19/2026	Jamison Professional Services, LLC	DBE	G170-LUBRICANTS	$ 243.60	$ -	$ -
4500075440	5/19/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 901.99	$ -	$ -
4500075441	5/19/2026	Day Management Corp		P210-NON-REV VEH REPAIRS	$ 519.29	$ -	$ -
4500075442	5/19/2026	Siemens Mobility, Inc.		M130-CROSSING MECHANISM	$ 3,853.14	$ -	$ -
4500075443	5/19/2026	Gillig LLC		B130-BUS BODY	$ 8,809.40	$ -	$ -
4500075444	5/19/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 30.60	$ -	$ -
4500075445	5/19/2026	TK Services Inc		B250-BUS REPAIR PARTS	$ 3,503.88	$ -	$ -
4500075446	5/19/2026	Prochem Specialty Products Inc	Small Business	G180-JANITORIAL SUPPLIES	$ 977.83	$ -	$ -
4500075447	5/19/2026	Ster Seating LLC		B130-BUS BODY	$ 352.45	$ -	$ -
4500075448	5/19/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 63.41	$ -	$ -
4500075449	5/19/2026	Day Management Corp		P210-NON-REV VEH REPAIRS	$ 503.67	$ -	$ -
4500075450	5/19/2026	Grah Safe & Lock Inc	Small Business	M110-SUB STATION	$ 1,102.14	$ -	$ -
4500075451	5/19/2026	Dimensional Silk Screen Inc		G230-PRINTED MATERIALS	$ 2,107.61	$ -	$ -
4500075452	5/19/2026	voestalpine Railway Systems		T110-TRACK, RAIL	$ 4,943.58	$ -	$ -
4500075453	5/19/2026	Neyenesch Printers Inc	Small Business	G230-PRINTED MATERIALS	$ 4,203.57	$ -	$ -
4500075454	5/19/2026	Dimensional Silk Screen Inc		G230-PRINTED MATERIALS	$ 288.09	$ -	$ -
4500075455	5/19/2026	APTA		P280-GENERAL SVC AGRMNTS	$ 81,750.00	$ -	$ -
4500075456	5/19/2026	Felipe's Truck Driving School		P540-MAINTENANCE TRAINING	$ 9,000.00	$ -	$ -
4500075457	5/20/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 831.85	$ -	$ -
4500075458	5/20/2026	Mohawk Mfg & Supply Co		B140-BUS CHASSIS	$ 21.38	$ -	$ -
4500075459	5/20/2026	Transit Holdings Inc		B120-BUS MECHANICAL PARTS	$ 9,214.87	$ -	$ -
4500075460	5/20/2026	Siemens Mobility, Inc.		R220-RAIL/LRV TRUCKS	$ 328.16	$ -	$ -
4500075461	5/20/2026	Jamison Professional Services, LLC	DBE	G170-LUBRICANTS	$ 2,290.16	$ -	$ -
4500075462	5/20/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 74.67	$ -	$ -
4500075463	5/20/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 472.32	$ -	$ -
4500075464	5/20/2026	SC Commercial, LLC		A120-AUTO/TRUCK GASOLINE	$ 3,662.01	$ -	$ -
4500075465	5/20/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 4,383.09	$ -	$ -
4500075466	5/20/2026	Home Depot USA Inc		M200-YARD FACILITIES	$ 299.55	$ -	$ -
4500075467	5/20/2026	Home Depot USA Inc		M200-YARD FACILITIES	$ 990.17	$ -	$ -
4500075468	5/20/2026	VGP Holdings LLC		B200-BUS PWR TRAIN EQUIP	$ 3,532.05	$ -	$ -
4500075469	5/20/2026	The Gordian Group, Inc.		C110-GENERAL CONTRACTORS	$ 1,063.59	$ -	$ 87,300.23
4500075470	5/20/2026	ABC General Contractor, Inc.		C110-GENERAL CONTRACTORS	$ 144,992.91	$ -	$ -
4500075471	5/20/2026	San Diego Compressed Air Power LLC		F110-SHOP/BLDG MACHINERY	$ 1,090.65	$ -	$ -
4500075472	5/20/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 10,016.11	$ -	$ -
4500075473	5/20/2026	TK Services Inc		G170-LUBRICANTS	$ 431.69	$ -	$ -
4500075474	5/20/2026	Muncie Reclamation and Supply Co		B160-BUS ELECTRICAL	$ 7,689.43	$ -	$ -
4500075475	5/20/2026	Cummins Inc		B120-BUS MECHANICAL PARTS	$ 843.79	$ -	$ -
4500075476	5/20/2026	Gillig LLC		B250-BUS REPAIR PARTS	$ 1,413.93	$ -	$ -
4500075477	5/20/2026	San Diego Friction Products, Inc.		B250-BUS REPAIR PARTS	$ 128.02	$ -	$ -
4500075478	5/20/2026	Grah Safe & Lock Inc	Small Business	G200-OFFICE SUPPLIES	$ 30.18	$ -	$ -
4500075479	5/20/2026	W.W. Grainger Inc		P280-GENERAL SVC AGRMNTS	$ 797.59	$ -	$ -
4500075480	5/20/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 1,482.62	$ -	$ -
4500075481	5/20/2026	Network Industries, Inc.		F110-SHOP/BLDG MACHINERY	$ 108.80	$ -	$ -
4500075482	5/20/2026	E W Truck & Equipment Co Inc		B130-BUS BODY	$ 899.93	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075483	5/20/2026	NS Corporation		F110-SHOP/BLDG MACHINERY	$ 2,084.01	$ -	$ -
4500075484	5/20/2026	Home Depot USA Inc		F110-SHOP/BLDG MACHINERY	$ 83.87	$ -	$ -
4500075485	5/20/2026	ISC Applied Systems Corp		R150-RAIL/LRV COMM EQUIP	$ 4,736.88	$ -	$ -
4500075486	5/21/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 35.18	$ -	$ -
4500075487	5/21/2026	Transit Holdings Inc		B120-BUS MECHANICAL PARTS	$ 437.08	$ -	$ -
4500075488	5/21/2026	Signal Hill Auto Enterprises, Inc.		G180-JANITORIAL SUPPLIES	$ 1,336.10	$ -	$ -
4500075489	5/21/2026	W.W. Grainger Inc		G140-SHOP SUPPLIES	$ 237.46	$ -	$ -
4500075490	5/21/2026	Trentman Corp	Small Business	P280-GENERAL SVC AGRMNTS	$ 115.89	$ -	$ -
4500075491	5/21/2026	Myers & Sons Hi-Way Safety Inc		M130-CROSSING MECHANISM	$ 1,442.89	$ -	$ -
4500075492	5/21/2026	Transit Holdings Inc		B110-BUS HVAC SYSTEMS	$ 1,218.67	$ -	$ -
4500075493	5/21/2026	Romaine Electric Corporation		M130-CROSSING MECHANISM	$ 1,113.39	$ -	$ -
4500075494	5/21/2026	Init Innovations in Transportation		G290-FARE REVENUE EQUIP	$ 890.03	$ -	$ -
4500075495	5/21/2026	Init Innovations in Transportation		G290-FARE REVENUE EQUIP	$ 9,054.37	$ -	$ -
4500075496	5/21/2026	Crane Payment Innovations Inc		G290-FARE REVENUE EQUIP	$ 402.69	$ -	$ -
4500075497	5/21/2026	W.W. Grainger Inc		G140-SHOP SUPPLIES	$ 734.48	$ -	$ -
4500075498	5/21/2026	No-Spill Systems Inc		B120-BUS MECHANICAL PARTS	$ 92.34	$ -	$ -
4500075499	5/21/2026	Kurt Morgan		G200-OFFICE SUPPLIES	$ 3,562.72	$ -	$ -
4500075500	5/21/2026	W.W. Grainger Inc		G140-SHOP SUPPLIES	$ 55.45	$ -	$ -
4500075501	5/21/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 516.88	$ -	$ -
4500075502	5/21/2026	Mcmaster-Carr Supply Co		R230-RAIL/LRV MECHANICAL	$ 388.94	$ -	$ -
4500075503	5/21/2026	A to Z Enterprises, Inc.		P300-TOWING SVCS	$ 90.00	$ -	$ -
4500075504	5/21/2026	Gillig LLC		B130-BUS BODY	$ 98,508.17	$ -	$ -
4500075505	5/21/2026	Gillig LLC		B130-BUS BODY	$ 754.34	$ -	$ -
4500075506	5/21/2026	W.W. Grainger Inc		B130-BUS BODY	$ 213.39	$ -	$ -
4500075507	5/21/2026	Costco Wholesale Corporation		G200-OFFICE SUPPLIES	$ 400.60	$ -	$ -
4500075509	5/21/2026	DGB Counseling and Consulting Inc		P490-MANAGEMENT TRAINING	$ 360.00	$ -	$ -
4500075510	5/21/2026	Ace Uniforms LLC	Small Business	C120-SPECIALTY CONTRACTOR	$ 1,161.55	$ -	$ -
4500075511	5/22/2026	Muncie Reclamation and Supply Co		B140-BUS CHASSIS	$ 644.75	$ -	$ -
4500075512	5/22/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 967.68	$ -	$ -
4500075513	5/22/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 53.40	$ -	$ -
4500075514	5/22/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 108.01	$ -	$ -
4500075515	5/22/2026	Transit Holdings Inc		B120-BUS MECHANICAL PARTS	$ 1,085.69	$ -	$ -
4500075516	5/22/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 14.96	$ -	$ -
4500075517	5/22/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 702.55	$ -	$ -
4500075518	5/22/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 788.75	$ -	$ -
4500075519	5/22/2026	Ace Uniforms LLC	Small Business	G240-UNIFORM PROCUREMENT	$ 229.66	$ -	$ -
4500075521	5/22/2026	The Boyd Group Inc		B250-BUS REPAIR PARTS	$ 247.83	$ -	$ -
4500075522	5/22/2026	Shilpark Paint Corporation		G160-PAINTS & CHEMICALS	$ 352.02	$ -	$ -
4500075523	5/22/2026	Arts Lawnmower and Repairs LLC		F190-LANDSCAPING MAT'LS	$ 1,293.00	$ -	$ -
4500075524	5/22/2026	Smith Systems Inc		R220-RAIL/LRV TRUCKS	$ 6,252.08	$ -	$ -
4500075525	5/22/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 1,426.31	$ -	$ -
4500075526	5/22/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 552.79	$ -	$ -
4500075527	5/22/2026	TK Services Inc		B250-BUS REPAIR PARTS	$ 10,860.18	$ -	$ -
4500075528	5/22/2026	Hi-Tec Enterprises		R120-RAIL/LRV CAR BODY	$ 1,070.57	$ -	$ -
4500075529	5/22/2026	Dimensional Silk Screen Inc		R120-RAIL/LRV CAR BODY	$ 1,573.16	$ -	$ -
4500075530	5/22/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 847.08	$ -	$ -
4500075531	5/22/2026	Team One Repair Inc		G290-FARE REVENUE EQUIP	$ 2,194.34	$ -	$ -
4500075532	5/22/2026	American Seating Company	Small Business	R200-RAIL/LRV SEATING	$ 581.86	$ -	$ -
4500075533	5/22/2026	The Gordian Group, Inc.		C120-SPECIALTY CONTRACTOR	$ 2,551.88	$ -	$ -
4500075534	5/22/2026	Reid and Clark Screen Arts Co		R120-RAIL/LRV CAR BODY	$ 2,957.74	$ -	$ -
4500075535	5/26/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 1,422.81	$ -	$ -
4500075536	5/26/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 685.29	$ -	$ -
4500075537	5/26/2026	MJ Service Industries LLC	Disabled Veteran Business	G200-OFFICE SUPPLIES	$ 3,795.08	$ -	$ -
4500075538	5/26/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 2,613.74	$ -	$ -
4500075539	5/26/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 226.19	$ -	$ -
4500075540	5/26/2026	Home Depot USA Inc		F110-SHOP/BLDG MACHINERY	$ 100.82	$ -	$ -
4500075541	5/26/2026	Home Depot USA Inc		F110-SHOP/BLDG MACHINERY	$ 1,359.15	$ -	$ -
4500075542	5/26/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 100.43	$ -	$ -
4500075543	5/26/2026	W.W. Grainger Inc		F110-SHOP/BLDG MACHINERY	$ 274.65	$ -	$ -
4500075544	5/26/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 11,262.07	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075545	5/26/2026	Pacific Star Corporation		G180-JANITORIAL SUPPLIES	$ 64.31	$ -	$ -
4500075546	5/26/2026	Radwell International LLC		R200-RAIL/LRV SEATING	$ 1,440.98	$ -	$ -
4500075547	5/26/2026	Saitech Inc	Minority Owned Business	I130-IT CAPITAL HARDWARE	$ 294.16	$ -	$ -
4500075548	5/26/2026	Clarran Inc.	DBE	G140-SHOP SUPPLIES	$ 824.75	$ -	$ -
4500075550	5/26/2026	Genuine Parts Company Inc		B120-BUS MECHANICAL PARTS	$ 48.46	$ -	$ -
4500075551	5/26/2026	San Diego Friction Products, Inc.		B120-BUS MECHANICAL PARTS	$ 4,285.22	$ -	$ -
4500075552	5/26/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 553.08	$ -	$ -
4500075553	5/26/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 72.60	$ -	$ -
4500075554	5/26/2026	Cummins Inc		B250-BUS REPAIR PARTS	$ 425.58	$ -	$ -
4500075555	5/26/2026	Home Depot USA Inc		F180-BUILDING MATERIALS	$ 1,207.83	$ -	$ -
4500075556	5/26/2026	CDW LLC		I110-INFORMATION TECH	$ 4,176.65	$ -	$ -
4500075557	5/26/2026	Transit Holdings Inc		B130-BUS BODY	$ 2,133.78	$ -	$ -
4500075558	5/26/2026	W.W. Grainger Inc		G140-SHOP SUPPLIES	$ 166.40	$ -	$ -
4500075559	5/26/2026	Init Innovations in Transportation		G290-FARE REVENUE EQUIP	$ 1,618.43	$ -	$ -
4500075560	5/26/2026	The Sherwin-Williams Company		B130-BUS BODY	$ 2,380.81	$ -	$ -
4500075561	5/26/2026	Gillig LLC		G140-SHOP SUPPLIES	$ 2,538.03	$ -	$ -
4500075562	5/26/2026	W.W. Grainger Inc		G140-SHOP SUPPLIES	$ 659.98	$ -	$ -
4500075563	5/26/2026	Midwest Bus Corporation		B130-BUS BODY	$ 2,408.36	$ -	$ -
4500075564	5/26/2026	R.S. Hughes Co Inc		G160-PAINTS & CHEMICALS	$ 1,507.97	$ -	$ -
4500075565	5/26/2026	Professional Contractors Supplies		G160-PAINTS & CHEMICALS	$ 517.66	$ -	$ -
4500075566	5/26/2026	Graybar Electric Co Inc		M120-OVRHEAD CATENARY SYS	$ 625.29	$ -	$ -
4500075567	5/26/2026	Genfare, LLC		G290-FARE REVENUE EQUIP	$ 1,098.73	$ -	$ -
4500075568	5/26/2026	2BFueled LLC		A120-AUTO/TRUCK GASOLINE	$ 12,417.50	$ -	$ -
4500075569	5/26/2026	Merrimac Petroleum Inc	Woman Owned Business	A120-AUTO/TRUCK GASOLINE	$ 3,429.44	$ -	$ -
4500075570	5/26/2026	Siemens Mobility, Inc.		R220-RAIL/LRV TRUCKS	$ 3,695.83	$ -	$ -
4500075571	5/26/2026	Vern Rose Inc		G140-SHOP SUPPLIES	$ 564.65	$ -	$ -
4500075573	5/26/2026	Vern Rose Inc		G140-SHOP SUPPLIES	$ 252.27	$ -	$ -
4500075574	5/26/2026	Reid and Clark Screen Arts Co		P210-NON-REV VEH REPAIRS	$ 79.20	$ -	$ -
4500075575	5/26/2026	San Diego Hydraulics, Inc.		P210-NON-REV VEH REPAIRS	$ 313.05	$ -	$ -
4500075576	5/27/2026	Winzer Franchise Company		R160-RAIL/LRV ELECTRICAL	$ 312.45	$ -	$ -
4500075577	5/27/2026	Freeby Signs		B130-BUS BODY	$ 240.72	$ -	$ -
4500075578	5/27/2026	Mohawk Mfg & Supply Co		B140-BUS CHASSIS	$ 221.97	$ -	$ -
4500075579	5/27/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 1,503.49	$ -	$ -
4500075580	5/27/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 5,335.83	$ -	$ -
4500075581	5/27/2026	Jamison Professional Services, LLC	DBE	G170-LUBRICANTS	$ 160.07	$ -	$ -
4500075582	5/27/2026	Transit Holdings Inc		B130-BUS BODY	$ 1,448.71	$ -	$ -
4500075583	5/27/2026	Waxie's Enterprises, LLC		G140-SHOP SUPPLIES	$ 469.25	$ -	$ -
4500075584	5/27/2026	Charter Industrial Supply Inc	Small Business	B120-BUS MECHANICAL PARTS	$ 302.82	$ -	$ -
4500075585	5/27/2026	CDCE, Inc.	Woman Owned Business	I110-INFORMATION TECH	$ 147,697.82	$ -	$ -
4500075586	5/27/2026	San Diego Friction Products, Inc.		G140-SHOP SUPPLIES	$ 1,572.32	$ -	$ -
4500075587	5/27/2026	Harbor Diesel & Equipment, Inc		B120-BUS MECHANICAL PARTS	$ 574.18	$ -	$ -
4500075588	5/27/2026	Motion Industries, Inc.		B120-BUS MECHANICAL PARTS	$ 1,481.84	$ -	$ -
4500075589	5/27/2026	Prochem Specialty Products Inc	Small Business	G180-JANITORIAL SUPPLIES	$ 977.83	$ -	$ -
4500075590	5/27/2026	Cummins Inc		B250-BUS REPAIR PARTS	$ 91.88	$ -	$ -
4500075591	5/27/2026	Transit Holdings Inc		B130-BUS BODY	$ 90.92	$ -	$ -
4500075592	5/27/2026	Harbor Diesel & Equipment, Inc		G170-LUBRICANTS	$ 13,586.10	$ -	$ -
4500075593	5/27/2026	Merrimac Petroleum Inc	Woman Owned Business	A120-AUTO/TRUCK GASOLINE	$ 18,541.55	$ -	$ -
4500075594	5/27/2026	Siemens Mobility, Inc.		R160-RAIL/LRV ELECTRICAL	$ 1,422.30	$ -	$ -
4500075595	5/27/2026	Clarran Inc.	DBE	G130-SHOP TOOLS	$ 157.16	$ -	$ -
4500075596	5/27/2026	W.W. Grainger Inc		R170-RAIL/LRV HVAC	$ 1,173.23	$ -	$ -
4500075597	5/27/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 1,413.89	$ -	$ -
4500075598	5/27/2026	Gillig LLC		B160-BUS ELECTRICAL	$ 1,511.47	$ -	$ -
4500075599	5/27/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 1,086.23	$ -	$ -
4500075600	5/27/2026	Fastenal Company		G140-SHOP SUPPLIES	$ 998.15	$ -	$ -
4500075601	5/28/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 205.41	$ -	$ -
4500075602	5/28/2026	Transit Holdings Inc		B130-BUS BODY	$ 1,320.07	$ -	$ -
4500075603	5/28/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 1,405.83	$ -	$ -
4500075604	5/28/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 89.74	$ -	$ -
4500075605	5/28/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 1,027.76	$ -	$ -
4500075606	5/28/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 304.74	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075607	5/28/2026	VSI Technologies Inc	Woman Owned Business	G190-SAFETY/MED SUPPLIES	$ 193.95	$ -	$ -
4500075608	5/28/2026	VSI Technologies Inc	Woman Owned Business	G190-SAFETY/MED SUPPLIES	$ 193.95	$ -	$ -
4500075609	5/28/2026	Home Depot USA Inc		F110-SHOP/BLDG MACHINERY	$ 467.96	$ -	$ -
4500075610	5/28/2026	Graybar Electric Co Inc		M140-WAYSIDE SIGNALS	$ 2,149.62	$ -	$ -
4500075611	5/28/2026	Dimensional Silk Screen Inc		F110-SHOP/BLDG MACHINERY	$ 307.10	$ -	$ -
4500075612	5/28/2026	RS Americas, Inc.		M140-WAYSIDE SIGNALS	$ 160.82	$ -	$ -
4500075613	5/28/2026	The Boyd Group Inc		G140-SHOP SUPPLIES	$ 123.92	$ -	$ -
4500075614	5/28/2026	RS Americas, Inc.		R120-RAIL/LRV CAR BODY	$ 3,178.63	$ -	$ -
4500075615	5/28/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 788.75	$ -	$ -
4500075616	5/28/2026	MCI Carrillo Inc	Small Business	P210-NON-REV VEH REPAIRS	$ 301.38	$ -	$ -
4500075617	5/28/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 250.00	$ -	$ -
4500075618	5/28/2026	American Business Solutions Inc		I110-INFORMATION TECH	$ 25,848.48	$ -	$ -
4500075619	5/28/2026	Inland Kenworth (US) Inc		B200-BUS PWR TRAIN EQUIP	$ 172.14	$ -	$ -
4500075620	5/28/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 150.98	$ -	$ -
4500075621	5/28/2026	VGP Holdings LLC		B200-BUS PWR TRAIN EQUIP	$ 1,766.03	$ -	$ -
4500075623	5/28/2026	RS Americas, Inc.		G130-SHOP TOOLS	$ 183.12	$ -	$ -
4500075624	5/28/2026	Siemens Mobility, Inc.		R160-RAIL/LRV ELECTRICAL	$ 32,219.00	$ -	$ -
4500075625	5/28/2026	TK Services Inc		B250-BUS REPAIR PARTS	$ 3,503.88	$ -	$ -
4500075626	5/28/2026	Dimensional Silk Screen Inc		G230-PRINTED MATERIALS	$ 96.03	$ -	$ -
4500075627	5/28/2026	MCI Carrillo Inc	Small Business	B250-BUS REPAIR PARTS	$ 75.00	$ -	$ -
4500075628	5/28/2026	North Island LLC		G230-PRINTED MATERIALS	$ 1,000.00	$ -	$ -
4500075629	5/28/2026	Big Belly Solar LLC		G140-SHOP SUPPLIES	$ 166.81	$ -	$ -
4500075630	5/28/2026	Shilpark Paint Corporation		G160-PAINTS & CHEMICALS	$ 136.64	$ -	$ -
4500075631	5/28/2026	Shilpark Paint Corporation		G160-PAINTS & CHEMICALS	$ 185.64	$ -	$ -
4500075632	5/28/2026	YourMembership.com Inc		P450-PERSONNEL SVCS	$ 399.00	$ -	$ -
4500075633	5/28/2026	Cummins Inc		B250-BUS REPAIR PARTS	$ 4,409.97	$ -	$ -
4500075634	5/28/2026	Hi-Tec Enterprises		R220-RAIL/LRV TRUCKS	$ 2,855.38	$ -	$ -
4500075635	5/28/2026	Muncie Reclamation and Supply Co		B160-BUS ELECTRICAL	$ 179.21	$ -	$ -
4500075636	5/28/2026	Trolley Support LLC		B250-BUS REPAIR PARTS	$ 3,146.30	$ -	$ -
4500075637	5/28/2026	Willy's Electronic Supply Co Inc		R160-RAIL/LRV ELECTRICAL	$ 44.66	$ -	$ -
4500075638	5/28/2026	Rosco Collision Avoidance LLC		B150-BUS COMM EQUIP.	$ 23,708.25	$ -	$ -
4500075639	5/29/2026	Signal Hill Auto Enterprises, Inc.		G180-JANITORIAL SUPPLIES	$ 1,115.22	$ -	$ -
4500075640	5/29/2026	Transit Holdings Inc		B130-BUS BODY	$ 27.48	$ -	$ -
4500075641	5/29/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 1,078.36	$ -	$ -
4500075642	5/29/2026	Transit Holdings Inc		B130-BUS BODY	$ 537.89	$ -	$ -
4500075643	5/29/2026	Transit Holdings Inc		B160-BUS ELECTRICAL	$ 1,508.35	$ -	$ -
4500075644	5/29/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 49.78	$ -	$ -
4500075645	5/29/2026	Professional Contractors Supplies		G130-SHOP TOOLS	$ 65.97	$ -	$ -
4500075646	5/29/2026	Romaine Electric Corporation		B160-BUS ELECTRICAL	$ 3,608.55	$ -	$ -
4500075647	5/29/2026	Allied Refrigeration Inc		G170-LUBRICANTS	$ 68.96	$ -	$ -
4500075648	5/29/2026	VOICE123 LLC		G260-MEDIA	$ 5,000.00	$ -	$ -
4500075649	5/29/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 4,401.70	$ -	$ -
4500075650	5/29/2026	Facility Solutions Group, Inc.		M180-STATION ELECTRICAL	$ 969.75	$ -	$ -
4500075651	5/29/2026	Data Controls Printworks, Inc.	Small Business	G230-PRINTED MATERIALS	$ 382.52	$ -	$ -
4500075652	5/29/2026	Home Depot USA Inc		G160-PAINTS & CHEMICALS	$ 357.09	$ -	$ -
4500075653	5/29/2026	Mohawk Mfg & Supply Co		B140-BUS CHASSIS	$ 651.03	$ -	$ -
4500075654	5/29/2026	Siemens Mobility, Inc.		R220-RAIL/LRV TRUCKS	$ 516.13	$ -	$ -
4500075655	5/29/2026	Muncie Reclamation and Supply Co		B110-BUS HVAC SYSTEMS	$ 3,061.80	$ -	$ -
4500075656	5/29/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 286.34	$ -	$ -
4500075657	5/29/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 45.83	$ -	$ -
4500075658	5/29/2026	Western-Cullen-Hayes Inc		M130-CROSSING MECHANISM	$ 533.37	$ -	$ -
4500075659	5/29/2026	Matthew Bender & Company Inc		P350-OTHER LEGAL	$ 5,000.00	$ -	$ -
4500075660	5/29/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 56.03	$ -	$ -
4500075661	6/1/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 1,267.14	$ -	$ -
4500075662	6/1/2026	Transit Holdings Inc		B130-BUS BODY	$ 671.46	$ -	$ -
4500075663	6/1/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 53.06	$ -	$ -
4500075664	6/1/2026	Signal Hill Auto Enterprises, Inc.		G180-JANITORIAL SUPPLIES	$ 76.44	$ -	$ -
4500075665	6/1/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 1,047.33	$ -	$ -
4500075666	6/1/2026	Transit Holdings Inc		B130-BUS BODY	$ 96.12	$ -	$ -
4500075667	6/1/2026	Transit Holdings Inc		B130-BUS BODY	$ 2,662.88	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075668	6/1/2026	Daniels Tire Service, Inc		A110-AUTO/TRUCK TIRES	$ 489.99	$ -	$ -
4500075669	6/1/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 532.50	$ -	$ -
4500075670	6/1/2026	Home Depot USA Inc		T150-TRACK, BRIDGES	$ 153.29	$ -	$ -
4500075671	6/1/2026	Airgas Inc		G140-SHOP SUPPLIES	$ 60.80	$ -	$ -
4500075672	6/1/2026	Day Management Corp		P210-NON-REV VEH REPAIRS	$ 503.67	$ -	$ -
4500075673	6/1/2026	Aymar Industries, LLC.		R140-RAIL/LRV DOORS/RAMP	$ 3,247.59	$ -	$ -
4500075674	6/1/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 992.25	$ -	$ -
4500075675	6/1/2026	Home Depot USA Inc		G180-JANITORIAL SUPPLIES	$ 342.56	$ -	$ -
4500075677	6/1/2026	Network Industries, Inc.		G160-PAINTS & CHEMICALS	$ 571.21	$ -	$ -
4500075678	6/1/2026	Cummins Inc		B120-BUS MECHANICAL PARTS	$ 349.70	$ -	$ -
4500075679	6/1/2026	Gillig LLC		B250-BUS REPAIR PARTS	$ 1,956.10	$ -	$ -
4500075680	6/1/2026	Interior Plant Service Inc		P280-GENERAL SVC AGRMNTS	$ 2,676.00	$ -	$ -
4500075681	6/1/2026	Safety-Kleen Systems, Inc		P140-MAINTENANCE, HVAC	$ 41,583.87	$ -	$ -
4500075682	6/1/2026	Asbury Environmental Services		P140-MAINTENANCE, HVAC	$ 3,312.00	$ -	$ -
4500075683	6/1/2026	Bonsall Petroleum Construction Inc		P140-MAINTENANCE, HVAC	$ 900.00	$ -	$ -
4500075684	6/1/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 1,062.42	$ -	$ -
4500075685	6/1/2026	Grah Safe & Lock Inc	Small Business	P140-MAINTENANCE, HVAC	$ 500.00	$ -	$ -
4500075686	6/1/2026	Ahlee Backflow Service, Inc	Small Business	P140-MAINTENANCE, HVAC	$ 582.00	$ -	$ -
4500075687	6/1/2026	Digi-Key Corporation		R160-RAIL/LRV ELECTRICAL	$ 602.55	$ -	$ -
4500075688	6/1/2026	Hi-Tec Enterprises		R160-RAIL/LRV ELECTRICAL	$ 4,864.92	$ -	$ -
4500075689	6/1/2026	Mohawk Mfg & Supply Co		B120-BUS MECHANICAL PARTS	$ 971.31	$ -	$ -
4500075690	6/1/2026	Muncie Reclamation and Supply Co		B120-BUS MECHANICAL PARTS	$ 768.91	$ -	$ -
4500075691	6/1/2026	RJ International LLC	DBE	G140-SHOP SUPPLIES	$ 1,297.85	$ -	$ -
4500075692	6/1/2026	San Diego Friction Products, Inc.		B250-BUS REPAIR PARTS	$ 4,759.02	$ -	$ -
4500075693	6/1/2026	Schunk Carbon Technology LLC		G170-LUBRICANTS	$ 1,580.04	$ -	$ -
4500075694	6/1/2026	Siemens Mobility, Inc.		R120-RAIL/LRV CAR BODY	$ 11,744.75	$ -	$ -
4500075695	6/1/2026	Muncie Reclamation and Supply Co		B140-BUS CHASSIS	$ 2,043.70	$ -	$ -
4500075696	6/1/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 178.55	$ -	$ -
4500075697	6/1/2026	2BFueled LLC		A120-AUTO/TRUCK GASOLINE	$ 15,378.71	$ -	$ -
4500075698	6/1/2026	Merrimac Petroleum Inc	Woman Owned Business	A120-AUTO/TRUCK GASOLINE	$ 3,491.09	$ -	$ -
4500075699	6/2/2026	Transit Holdings Inc		B130-BUS BODY	$ 684.61	$ -	$ -
4500075700	6/2/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 994.50	$ -	$ -
4500075701	6/2/2026	Allied Refrigeration Inc		F110-SHOP/BLDG MACHINERY	$ 182.77	$ -	$ -
4500075702	6/2/2026	Siemens Mobility, Inc.		M140-WAYSIDE SIGNALS	$ 14,925.87	$ -	$ -
4500075703	6/2/2026	Compressed Air Systems		F110-SHOP/BLDG MACHINERY	$ 885.71	$ -	$ -
4500075704	6/2/2026	Harbor Diesel & Equipment, Inc		B200-BUS PWR TRAIN EQUIP	$ 20,638.79	$ -	$ -
4500075705	6/2/2026	Knorr Brake Company, LLC		R220-RAIL/LRV TRUCKS	$ 3,081.65	$ -	$ -
4500075706	6/2/2026	Dellner Inc		R130-RAIL/LRV COUPLER	$ 15,702.03	$ -	$ -
4500075707	6/2/2026	Rush Truck Centers of California		B200-BUS PWR TRAIN EQUIP	$ 4,155.92	$ -	$ -
4500075708	6/2/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 3,061.50	$ -	$ -
4500075709	6/2/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 788.75	$ -	$ -
4500075711	6/2/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 250.00	$ -	$ -
4500075712	6/2/2026	Init Innovations in Transportation		B190-BUS FARE EQUIP	$ 250.00	$ -	$ -
4500075713	6/2/2026	Vinyard Doors, Inc.	Woman Owned Business	F150-DOORS, OVERHEAD	$ 773.10	$ -	$ -
4500075714	6/2/2026	California Association of		P450-PERSONNEL SVCS	$ 1,740.00	$ -	$ 8,870.06
4500075715	6/2/2026	ABC General Contractor, Inc.		C110-GENERAL CONTRACTORS	$ 96,834.67	$ -	$ -
4500075716	6/2/2026	The Gordian Group, Inc.		C130-CONSTRUCTION SVCS	$ 1,704.29	$ -	$ -
4500075717	6/3/2026	Bees Lighting		M180-STATION ELECTRICAL	$ 2,727.16	$ -	$ -
4500075718	6/3/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 5,259.45	$ -	$ -
4500075719	6/3/2026	Siemens Mobility, Inc.		R120-RAIL/LRV CAR BODY	$ 2,492.04	$ -	$ -
4500075720	6/3/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 56.16	$ -	$ -
4500075721	6/3/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 68.53	$ -	$ -
4500075722	6/3/2026	VSI Technologies Inc	Woman Owned Business	G190-SAFETY/MED SUPPLIES	$ 969.75	$ -	$ -
4500075723	6/3/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 4,270.81	$ -	$ -
4500075724	6/3/2026	3 Degrees Group, Inc.		G270-ELECTRICAL/LIGHTING	$ 56,938.88	$ -	$ -
4500075725	6/3/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 2,213.47	$ -	$ -
4500075726	6/3/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 16,750.48	$ -	$ -
4500075727	6/3/2026	Trolley Support LLC		B250-BUS REPAIR PARTS	$ 1,573.15	$ -	$ -
4500075728	6/3/2026	Gillig LLC		B120-BUS MECHANICAL PARTS	$ 4,451.07	$ -	$ -
4500075729	6/3/2026	Muncie Reclamation and Supply Co		B250-BUS REPAIR PARTS	$ 12,229.75	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075730	6/3/2026	San Diego Friction Products, Inc.		B250-BUS REPAIR PARTS	$ 2,288.17	$ -	$ -
4500075731	6/3/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 227.25	$ -	$ -
4500075732	6/3/2026	TK Services Inc		G170-LUBRICANTS	$ 418.08	$ -	$ -
4500075734	6/3/2026	NCC Group Software Resilience NA LL		I110-INFORMATION TECH	$ 3,865.00	$ -	$ -
4500075735	6/3/2026	Rush Truck Centers of California		B140-BUS CHASSIS	$ 5,217.34	$ -	$ -
4500075736	6/3/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 907.72	$ -	$ -
4500075737	6/3/2026	Kurt Morgan		G200-OFFICE SUPPLIES	$ 2,208.06	$ -	$ -
4500075738	6/3/2026	Genfare, LLC		G290-FARE REVENUE EQUIP	$ 1,231.08	$ -	$ -
4500075739	6/3/2026	Daniels Tire Service, Inc		A110-AUTO/TRUCK TIRES	$ 3,420.00	$ -	$ -
4500075740	6/3/2026	Gillig LLC		B160-BUS ELECTRICAL	$ 546.70	$ -	$ -
4500075741	6/3/2026	Jamaica Bearings Co Inc		R220-RAIL/LRV TRUCKS	$ 58,780.65	$ -	$ -
4500075742	6/3/2026	GH Cranes & Components USA Inc		C120-SPECIALTY CONTRACTOR	$ 2,195.00	$ -	$ -
4500075743	6/4/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 70.04	$ -	$ -
4500075744	6/4/2026	Mohawk Mfg & Supply Co		B200-BUS PWR TRAIN EQUIP	$ 498.23	$ -	$ -
4500075745	6/4/2026	San Diego Community		P490-MANAGEMENT TRAINING	$ 140.92	$ -	$ -
4500075746	6/4/2026	Prudential Overall Supply		G140-SHOP SUPPLIES	$ 1,978.29	$ -	$ -
4500075747	6/4/2026	The Infurmary Veterinary		G120-SECURITY	$ 509.52	$ -	$ -
4500075748	6/4/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 922.68	$ -	$ -
4500075749	6/4/2026	Mohawk Mfg & Supply Co		B200-BUS PWR TRAIN EQUIP	$ 3,539.86	$ -	$ -
4500075750	6/4/2026	Transit Holdings Inc		B160-BUS ELECTRICAL	$ 1,063.57	$ -	$ -
4500075751	6/4/2026	Transit Holdings Inc		B200-BUS PWR TRAIN EQUIP	$ 4,033.26	$ -	$ -
4500075752	6/4/2026	B & S Graphics Inc		B130-BUS BODY	$ 301.16	$ -	$ -
4500075753	6/4/2026	Hi-Tec Enterprises		G150-FASTENERS	$ 134.69	$ -	$ -
4500075754	6/4/2026	VCA Animal Hospitals, Inc.		G120-SECURITY	$ 297.25	$ -	$ -
4500075755	6/4/2026	Professional Contractors Supplies		R160-RAIL/LRV ELECTRICAL	$ 2,853.48	$ -	$ -
4500075756	6/4/2026	RJ International LLC	DBE	G140-SHOP SUPPLIES	$ 2,742.24	$ -	$ -
4500075757	6/4/2026	San Diego Friction Products, Inc.		G140-SHOP SUPPLIES	$ 484.51	$ -	$ -
4500075758	6/4/2026	San Diego Friction Products, Inc.		B140-BUS CHASSIS	$ 4,394.17	$ -	$ -
4500075759	6/4/2026	W.W. Grainger Inc		G130-SHOP TOOLS	$ 1,162.85	$ -	$ -
4500075760	6/4/2026	HPK Industries LLC		P540-MAINTENANCE TRAINING	$ 538.75	$ -	$ -
4500075761	6/4/2026	Knorr Brake Company, LLC		R160-RAIL/LRV ELECTRICAL	$ 8,333.39	$ -	$ -
4500075762	6/4/2026	San Diego Friction Products, Inc.		B160-BUS ELECTRICAL	$ 5,922.48	$ -	$ -
4500075763	6/4/2026	MTB Gear Inc		C120-SPECIALTY CONTRACTOR	$ 401.27	$ -	$ -
4500075764	6/4/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 22.41	$ -	$ -
4500075765	6/4/2026	Staples Contract & Commercial LLC		P280-GENERAL SVC AGRMNTS	$ 77.30	$ -	$ -
4500075766	6/4/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 418.50	$ -	$ -
4500075767	6/4/2026	Ababa Bolt		P280-GENERAL SVC AGRMNTS	$ 333.92	$ -	$ -
4500075768	6/4/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 644.25	$ -	$ -
4500075769	6/4/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 398.00	$ -	$ -
4500075770	6/4/2026	Cummins Inc		P540-MAINTENANCE TRAINING	$ 820.00	$ -	$ -
4500075771	6/4/2026	San Diego Community		P540-MAINTENANCE TRAINING	$ 440.00	$ -	$ -
4500075772	6/4/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 566.71	$ -	$ -
4500075773	6/4/2026	Madden Construction Inc		P280-GENERAL SVC AGRMNTS	$ 185.00	$ -	$ -
4500075774	6/5/2026	Mohawk Mfg & Supply Co		B200-BUS PWR TRAIN EQUIP	$ 6,647.96	$ -	$ -
4500075775	6/5/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 967.68	$ -	$ -
4500075776	6/5/2026	Mohawk Mfg & Supply Co		B200-BUS PWR TRAIN EQUIP	$ 87.63	$ -	$ -
4500075777	6/5/2026	Transit Holdings Inc		B160-BUS ELECTRICAL	$ 715.05	$ -	$ -
4500075778	6/5/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 7,755.13	$ -	$ -
4500075779	6/5/2026	SC Commercial, LLC		A120-AUTO/TRUCK GASOLINE	$ 3,341.43	$ -	$ -
4500075780	6/5/2026	B Hepworth & Co LTD of CT		R160-RAIL/LRV ELECTRICAL	$ 74.19	$ -	$ -
4500075781	6/5/2026	Team One Repair Inc		G290-FARE REVENUE EQUIP	$ 3,927.91	$ -	$ -
4500075782	6/5/2026	CG Visual Solutions Corporation		G230-PRINTED MATERIALS	$ 6,340.21	$ -	$ -
4500075783	6/5/2026	ABC General Contractor, Inc.		C110-GENERAL CONTRACTORS	$ 5,225.33	$ -	$ -
4500075784	6/5/2026	The Gordian Group, Inc.		C110-GENERAL CONTRACTORS	$ 91.97	$ -	$ -
4500075785	6/5/2026	California Association of		P450-PERSONNEL SVCS	$ 100.00	$ -	$ -
4500075786	6/5/2026	Tennant Sales & Serv Co		P130-EQUIP MAINT REPR SVC	$ 405.36	$ -	$ -
4500075787	6/5/2026	Tennant Sales & Serv Co		P130-EQUIP MAINT REPR SVC	$ 370.47	$ -	$ -
4500075788	6/5/2026	Shilpark Paint Corporation		G160-PAINTS & CHEMICALS	$ 77.60	$ -	$ -
4500075789	6/5/2026	Fastenal Company		G140-SHOP SUPPLIES	$ 447.50	$ -	$ -
4500075790	6/5/2026	Prochem Specialty Products Inc	Small Business	G180-JANITORIAL SUPPLIES	$ 977.83	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075791	6/5/2026	Professional Contractors Supplies		G160-PAINTS & CHEMICALS	$ 46.12	$ -	$ -
4500075792	6/5/2026	Sign Post Studio Inc	Small Business	C110-GENERAL CONTRACTORS	$ 21,169.20	$ -	$ -
4500075793	6/5/2026	Romaine Electric Corporation		B160-BUS ELECTRICAL	$ 7,645.20	$ -	$ -
4500075794	6/5/2026	San Diego Friction Products, Inc.		G160-PAINTS & CHEMICALS	$ 301.64	$ -	$ -
4500075795	6/5/2026	Staples Contract & Commercial LLC		G140-SHOP SUPPLIES	$ 656.33	$ -	$ -
4500075796	6/5/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 2,929.99	$ -	$ -
4500075797	6/5/2026	Trolley Support LLC		B130-BUS BODY	$ 6,949.88	$ -	$ -
4500075798	6/5/2026	W.W. Grainger Inc		G120-SECURITY	$ 790.35	$ -	$ -
4500075799	6/5/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 4,538.43	$ -	$ -
4500075801	6/6/2026	Bashir Family Investment Inc		C120-SPECIALTY CONTRACTOR	$ 58,320.00	$ -	$ -
4500075802	6/6/2026	Bashir Family Investment Inc		C120-SPECIALTY CONTRACTOR	$ 127,939.80	$ -	$ -
4500075803	6/6/2026	Bashir Family Investment Inc		P140-MAINTENANCE, HVAC	$ 27,470.00	$ -	$ -
4500075804	6/6/2026	Bashir Family Investment Inc		P550-REAL ESTATE	$ 56,046.00	$ -	$ -
4500075805	6/8/2026	Gillig LLC		B200-BUS PWR TRAIN EQUIP	$ 254.20	$ -	$ -
4500075806	6/8/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 82.43	$ -	$ -
4500075807	6/8/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 4.52	$ -	$ -
4500075808	6/8/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 1,190.89	$ -	$ -
4500075809	6/8/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 1,024.98	$ -	$ -
4500075810	6/8/2026	Siemens Mobility, Inc.		R120-RAIL/LRV CAR BODY	$ 36,930.24	$ -	$ -
4500075811	6/8/2026	Signal Hill Auto Enterprises, Inc.		G180-JANITORIAL SUPPLIES	$ 5,223.99	$ -	$ -
4500075812	6/8/2026	Blue Angel International LLC	Small Business	G190-SAFETY/MED SUPPLIES	$ 254.85	$ -	$ -
4500075813	6/8/2026	Western-Cullen-Hayes Inc		M130-CROSSING MECHANISM	$ 2,004.15	$ -	$ -
4500075814	6/8/2026	Fastenal Company		R220-RAIL/LRV TRUCKS	$ 116.37	$ -	$ -
4500075815	6/8/2026	Genuine Parts Company Inc		G170-LUBRICANTS	$ 450.35	$ -	$ -
4500075816	6/8/2026	Home Depot USA Inc		R120-RAIL/LRV CAR BODY	$ 400.06	$ -	$ -
4500075817	6/8/2026	MJ Service Industries LLC	Disabled Veteran Business	M140-WAYSIDE SIGNALS	$ 37.17	$ -	$ -
4500075818	6/8/2026	Motion Industries, Inc.		G140-SHOP SUPPLIES	$ 934.50	$ -	$ -
4500075819	6/8/2026	Muncie Reclamation and Supply Co		B130-BUS BODY	$ 40.25	$ -	$ -
4500075820	6/8/2026	Uline Inc		G130-SHOP TOOLS	$ 313.90	$ -	$ -
4500075821	6/8/2026	Transit Holdings Inc		B250-BUS REPAIR PARTS	$ 943.32	$ -	$ -
4500075822	6/8/2026	R.S. Hughes Co Inc		G140-SHOP SUPPLIES	$ 455.81	$ -	$ -
4500075823	6/8/2026	Morbern LLC		R200-RAIL/LRV SEATING	$ 37,453.89	$ -	$ -
4500075824	6/8/2026	San Diego Friction Products, Inc.		B140-BUS CHASSIS	$ 1,598.13	$ -	$ -
4500075825	6/8/2026	Romaine Electric Corporation		B160-BUS ELECTRICAL	$ 7,645.20	$ -	$ -
4500075826	6/8/2026	2BFueled LLC		A120-AUTO/TRUCK GASOLINE	$ 15,373.99	$ -	$ -
4500075827	6/8/2026	Merrimac Petroleum Inc	Woman Owned Business	A120-AUTO/TRUCK GASOLINE	$ 3,387.82	$ -	$ -
4500075828	6/8/2026	San Diego Friction Products, Inc.		B120-BUS MECHANICAL PARTS	$ 3,951.21	$ -	$ -
4500075829	6/8/2026	Hitachi Rail STS USA, Inc.		M130-CROSSING MECHANISM	$ 7,500.04	$ -	$ -
4500075830	6/8/2026	Staples Contract & Commercial LLC		G200-OFFICE SUPPLIES	$ 1,989.37	$ -	$ -
4500075831	6/8/2026	Amazon.com Sales, Inc.		G250-NOVELTIES & AWARDS	$ 317.36	$ -	$ -
4500075832	6/9/2026	Transit Holdings Inc		B160-BUS ELECTRICAL	$ 3,542.18	$ -	$ -
4500075833	6/9/2026	Baked Bear LLC		P480-EE MAINTENANCE	$ 1,593.54	$ -	$ -
4500075834	6/9/2026	Mohawk Mfg & Supply Co		B200-BUS PWR TRAIN EQUIP	$ 307.61	$ -	$ -
4500075835	6/9/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 393.07	$ -	$ -
4500075836	6/9/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 1,236.76	$ -	$ -
4500075837	6/9/2026	MJ Service Industries LLC	Disabled Veteran Business	G200-OFFICE SUPPLIES	$ 3,252.92	$ -	$ -
4500075838	6/9/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 2,824.02	$ -	$ -
4500075839	6/9/2026	San Diego Friction Products, Inc.		B160-BUS ELECTRICAL	$ 7,403.11	$ -	$ -
4500075840	6/9/2026	Waxie's Enterprises, LLC		G180-JANITORIAL SUPPLIES	$ 832.01	$ -	$ -
4500075841	6/9/2026	Transit Holdings Inc		B130-BUS BODY	$ 1,336.55	$ -	$ -
4500075842	6/9/2026	Institute for Sustainable		P280-GENERAL SVC AGRMNTS	$ 28,800.00	$ -	$ -
4500075843	6/9/2026	Costco Wholesale Corporation		G250-NOVELTIES & AWARDS	$ 230.69	$ -	$ -
4500075844	6/9/2026	Network Industries, Inc.		P130-EQUIP MAINT REPR SVC	$ 263.63	$ -	$ -
4500075845	6/9/2026	Mcmaster-Carr Supply Co		B250-BUS REPAIR PARTS	$ 88.10	$ -	$ -
4500075846	6/9/2026	Gillig LLC		B250-BUS REPAIR PARTS	$ 66.10	$ -	$ -
4500075847	6/9/2026	VGP Holdings LLC		B120-BUS MECHANICAL PARTS	$ 5,926.25	$ -	$ -
4500075848	6/9/2026	Sportworks Global LLC		B130-BUS BODY	$ 226.28	$ -	$ -
4500075849	6/9/2026	Waxie's Enterprises, LLC		G140-SHOP SUPPLIES	$ 2,822.78	$ -	$ -
4500075850	6/9/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 109.91	$ -	$ -
4500075851	6/9/2026	White Cap, LP		M180-STATION ELECTRICAL	$ 1,765.59	$ -	$ -

Purchase Orders							
Purchase Orders	PO Date	Name	Prime Business Certification	Material Group	PO Value	DBE Subcontracted Amount	Non DBE Subcontracted Amount
4500075852	6/9/2026	Gillig LLC		B120-BUS MECHANICAL PARTS	$ 2,618.08	$ -	$ -
4500075853	6/9/2026	Waxie's Enterprises, LLC		G140-SHOP SUPPLIES	$ 1,772.49	$ -	$ -
4500075854	6/10/2026	Airgas Inc		R160-RAIL/LRV ELECTRICAL	$ 1,550.83	$ -	$ -
4500075855	6/10/2026	Allied Refrigeration Inc		G170-LUBRICANTS	$ 68.96	$ -	$ -
4500075856	6/10/2026	American Battery Corporation	Small Business	P280-GENERAL SVC AGRMNTS	$ 4,776.56	$ -	$ -
4500075857	6/10/2026	Applied Industrial		G140-SHOP SUPPLIES	$ 203.75	$ -	$ -
4500075858	6/10/2026	Cummins Inc		B200-BUS PWR TRAIN EQUIP	$ 3,388.83	$ -	$ -
4500075859	6/10/2026	Mohawk Mfg & Supply Co		B200-BUS PWR TRAIN EQUIP	$ 5.04	$ -	$ -
4500075860	6/10/2026	Transit Holdings Inc		B140-BUS CHASSIS	$ 806.08	$ -	$ -
4500075861	6/10/2026	Transit Holdings Inc		B130-BUS BODY	$ 8,678.12	$ -	$ -
4500075862	6/10/2026	Cembre Inc		M170-IMPEDANCE BOND	$ 564.07	$ -	$ -
4500075863	6/10/2026	Clarran Inc.	DBE	G150-FASTENERS	$ 586.40	$ -	$ -
4500075864	6/10/2026	Crane Payment Innovations Inc		G290-FARE REVENUE EQUIP	$ 161.37	$ -	$ -
4500075865	6/10/2026	Cummins Inc		B250-BUS REPAIR PARTS	$ 994.20	$ -	$ -
4500075866	6/10/2026	MCI Carrillo Inc	Small Business	B250-BUS REPAIR PARTS	$ 1,933.55	$ -	$ -
4500075867	6/10/2026	Shilpark Paint Corporation		G160-PAINTS & CHEMICALS	$ 1,629.84	$ -	$ -
4500075868	6/10/2026	Gillig LLC		B250-BUS REPAIR PARTS	$ 282.35	$ -	$ -
4500075869	6/10/2026	VGP Holdings LLC		B120-BUS MECHANICAL PARTS	$ 4,741.00	$ -	$ -
4500075870	6/10/2026	Norman Industrial Materials Inc.		G140-SHOP SUPPLIES	$ 91.38	$ -	$ -
4500075871	6/10/2026	Coquina Labs Inc		I110-INFORMATION TECH	$ 1,964.66	$ -	$ -
4500075872	6/10/2026	Versa Products Inc		G200-OFFICE SUPPLIES	$ 1,149.15	$ -	$ -

The U.S. Department of Transportation (USDOT) has issued an Interim Final Rule (IFR) that makes changes to the Disadvantaged Business Enterprise (DBE) program effective October 3, 2025. These changes affect how DBE firms become certified, how existing DBE firms maintain certification, and how recipients like MTS may count DBE participation. For any firms that are listed to have a DBE certification, the DBE certification is based on the old certification standards prior to October 3, 2025. MTS is currently reviewing the IFR and working with our funding agencies to identify what program and procedural changes may be necessary

EXPENSE CONTRACTS				
Doc #	**Organization**	**Subject**	**Amount**	**Day**
G3186.0-26	TRAPEZE	EZ WALLET IMPLEMENTATION	$65,932.00	5/14/2026
PWG441.0-25JOC441-03	ABCGC	IAD SECURITY AND SIGNOUT BOOTH	$141,374.65	5/14/2026
PWG441.0-25JOC441-05	ABCGC	MILLS BUILDING FIRE SPRINKLER REPAIRS	$96,834.57	5/14/2026
PWL439.3-25	HAZARD	BEYER BLVD SLOPE IMPROVS	$12,036.00	5/19/2026
G3179.0-26	CDCE	PURCHASE OF CELLULAR ROUTERS AND LICENSES	$147,697.82	5/21/2026
B0693.2-19	THE ARC OF SD	ADD FUNDS	$10,277.60	5/27/2026
PWG324.0-21JOC59.01	ABCGC	KMD FIRE ALARM REPLCMT CCO 01	$26,231.02	6/1/2026
PWL354.0-22WOAAE23.05	MM	ADD DSDC FUNDS	$89,999.95	6/1/2026
B0785.1-26	MOLINA MFG	VINYL SURCHARGE	$3,959.81	6/2/2026
G2524.0-22.WO4	3DEGREES	PURCHASE 16,552 RECS	$56,938.88	6/2/2026
PWB415.1-25	FORDYCE	CCOs 1 2 3 6	$9,157.29	6/2/2026
PWG410.1-25	ALICIA M. SUI	ADDITIONAL COST	$1,000.00	6/2/2026
PWL378.1-24	DRAKE INTEGRATIONS	UPDATE SOFTWARE	$18,000.00	6/2/2026
PWB411.5-25	GA ABELL	IAD ZEB CHARGING PH1 - CCO 4	$17,866.21	6/4/2026
PWG347.0-22JOC347-50	ABCGC	GROSSMONT ELEVATOR 2 SILL REPAIR	$5,225.33	6/4/2026
PWL356.0-22WOAAE03.07	PRE	ADD FUNDS	$12,265.58	6/5/2026
L1691.2-25	DAI	SIGNAL ENCLOSURES	$52,166.88	6/8/2026
PWG324.0-21JOC71.01	ABCGC	CCO1	$44,934.44	6/8/2026
PWL360.2-23	COMFORT MECHANICAL	ADD FUNDS	$140,000.00	6/8/2026
G2212.11-19	ENVIRONMENTAL LAW GROUP LLP	ADD FUNDS	$100,000.00	6/10/2026
G2216.14-19	LAUGHLIN, FALBO, LEVY & MORESI LLP	ADD FUNDS	$75,000.00	6/10/2026

REVENUE CONTRACTS AND MOUs				
Doc #	**Organization**	**Subject**	**Amount**	**Day**
G1710.12-14	CITY OF CORONADO	FREE SUMMER SHUTTLE	$113,699.51	5/15/2026
G3142.0-26	PENDRY	PRONTO PARTNER AGREEMENT	$5,832.00	5/25/2026
G3216.0-26	CALTRANS	RGA CALTRANS	$442,650.00	6/9/2026

Metropolitan Transit System

Agenda Item No. 05

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

On-Call Job Order Contracting (JOC) General Civil Construction Services – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. PWG457.0-26 (in substantially the same format as Attachment A), with ABC General Contractor, Inc. (ABCGC), for on-call general civil construction services, to not exceed the statutory JOC limits under Public Contract Code Section 20128.5, calculated to be in the amount of $6,576,000.00, for one (1) year beginning July 1, 2026.

Budget Impact

The total cost of this contract is estimated to be $6,576,000.00 based on the calculated statutory JOC limits. The contract will be funded by various MTS capital budget accounts. Funding will be included in the budget of each project for which a work order will be issued under this agreement.

DISCUSSION:

JOC is a procurement method under which public agencies may accomplish frequently encountered repairs, maintenance, and construction projects through a single, competitively procured long-term agreement.

The JOC program includes a catalog of pricing for a variety of potential tasks to be performed under the contract, that have been pre-priced by our contractor, the Gordian Group. All potential contractors are subject to the pricing within this catalog. Each contractor then includes an adjustment factor, escalating their proposed price from the catalog price, to determine the total cost of the task order. The adjustment factor represents an average percentage increase over the catalog price (i.e. 1.25 adjustment factor represents 25% above the catalog price) for that respective task within the project. In order to select the lowest responsive and responsible bidder, MTS staff compares each contractor's proposed adjustment factor.

MTS's enabling legislation at Public Utilities Code Section 120222 authorizes MTS to use any procurement method authorized for state or local agencies under state or federal law. Certain public entities in California are expressly authorized to use the JOC process within limited parameters. MTS's abilities to utilize the JOC contracting process is premised upon the statutory allowance granted to such entities. Public Contract Code Section 20128.5, effective January 1, 1998, allows the board of supervisors of a county to utilize JOCs up to $3,000,000.00 annually, adjusted annually to reflect the percent change in the California Consumer Price Index. CPI calculations through December 31, 2025 allow JOC contract amounts of up to $6,576,000.00 annually. MTS maintains internal contract administration guidelines to ensure compliance with the annual maximum in JOC work orders.

The JOC contract under consideration is for the General Civil Construction Services category of work, which includes repair, remodeling, or other repetitive work for, general civil and site improvements, including, but not limited to, earthwork, utilities, paving, concrete, drainage, landscaping mitigation, site clearing, and all required incidental professional and technical services.

On March 3, 2026, MTS issued an Invitation for Bids (IFB) seeking a contractor to provide JOC civil construction services with the award provided to the contractor with the lowest cumulative adjustment factor weighted as follows:

Item 1: Normal Working Hours (Non-Railroad Right-of-Way) – 75%
Item 2: Other Than Normal Hours (Non-Railroad Right-of-Way) – 15%
Item 3: Normal Working Hours Along Railroad Right-of-Way – 5%
Item 4: Other Than Normal Hours Along Railroad Right-of-Way – 2%
Item 5: Restricted Work Shift – 3%

On April 17, 2026, four (4) bids were received from the following firms listed in the table below:

Contractor	Certifications	Total Score
ABC General Contractor, Inc.	N/A	1.0530
Domestic Rail Solutions, Inc.	Small Business - Public Works (SB-PW)	1.2615
Miramar General Engineering	Small Business (SB (Micro))	1.4546
Romer General Construction Corp.	N/A	1.1496

The low bid is considered to be the bid with the lowest cumulative adjustment factor over the pre-priced catalog. Therefore, MTS determined that ABCGC was the lowest responsive and responsible bidder. Staff determined that the solicitation was conducted in a fair and open manner. Based on historical results for these and other JOC services, MTS Procurement staff determined ABCGC’s adjustment factor to be fair and reasonable.

Today’s proposed action would authorize the award of this on-call contract to ABCGC. However, no specific project or spending is authorized. Individual projects/task orders will be processed according to the signature authority set forth in Board Policy No. 41 (e.g. task orders under $150,000 will be approved by the CEO; task orders over $150,000 will require Board approval). Any individual work order estimated to be over $1,000,000.00 will require compliance

with MTS's Project Labor Agreement. If subcontractors are needed for any individual work order, the Contractor will designate the list of subcontracts at that time.

MTS staff currently estimates that approximately $1,500,000 in capacity is needed for projected General Civil Construction JOC work order needs in Fiscal Year 2027. However, JOC work orders are a key tool in MTS's emergency response and recovery plan since they provide an expedited path to authorize work at competitively set rates. They also sometimes accommodate work that is funded by new grant opportunities that were not anticipated at the time of the JOC contract award. Therefore, staff recommends this proposed JOC master agreement allow JOC work orders up to the annual statutory limit of $6,576,000 to provide capacity for emergencies and other unexpected funding allocations and project work.

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute MTS Doc. No. PWG457.0-26 (in substantially the same format as Attachment A), with ABCGC, for on-call general civil construction services, to not exceed the statutory JOC limits under Public Contract Code Section 20128.5, calculated to be in the amount of $6,576,000.00, for one (1) year beginning July 1, 2026.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachment: A. Draft Standard Construction Agreement, MTS Doc. No. PWG457.0-26

Metropolitan Transit System

STANDARD CONSTRUCTION AGREEMENT

FOR

MTS DOC. NO. PWG457.0-26

JOC GENERAL CIVIL CONSTRUCTION SERVICES

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: ABC General Contractor Inc. Address: 1941 Friendship Drive, Ste F

El Cajon, CA 92020
City State Zip

Form of Business: Corporation
(Corporation, Partnership, Sole Proprietor, etc.)

Email: travis@abcgeneralinc.com

Telephone: 619-937-1010

Authorized person to sign contracts Travis Brozowski CEO
Name Title

The specified Contract Documents are part of this Agreement. The Contractor agrees to furnish to MTS services and materials, as follows:

Contractor shall furnish all necessary management, supervision, labor, materials, tools, supplies, equipment, plant, services, engineering, testing and/or any other act or thing required to diligently and fully perform and complete the Project as specified in the General Conditions (Exhibit A), Scope of Work (Exhibit B), and in accordance with the Standard Construction Agreement and Special Conditions (Exhibit C), JOC Special Conditions (Exhibit D), Federal Requirements (Exhibit E), Forms (Exhibit F), Bid Form (Exhibit G), Contractor Bonds (Exhibit H), Construction Task Catalog (Exhibit I), and Technical Specifications (Exhibit J). All Exhibits to this agreement are attached separately on PlanetBids.

SCOPE OF WORK.

Contractor, for and in consideration of the payment to be made to Contractor as hereinafter provided, shall furnish all plant, labor, technical and professional services, supervision, materials and equipment, other than such materials and equipment as may be specified to be furnished by MTS, and perform all operations necessary to complete the Work in strict conformance with the Contract Documents (defined below) for the following public work of improvement:

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JOC GENERAL CIVIL CONSTRUCTION SERVICES

Contractor is an independent contractor and not an agent of MTS. The Contractor and its surety shall be liable to MTS for any damages arising as a result of the Contractor's failure to comply with this obligation.

CONTRACT TIME.

This agreement shall be valid for a period of one (1) base year. Base period shall be effective July 1, 2026 through June 30, 2027. Time is of the essence in the performance of the Work for each subsequent Work Order. The Work shall be commenced by the date stated in MTS's Notice to Proceed in the first Work Order of the Contract. The Contractor shall complete all Work required by the Contract Documents within the days specified in each Work Order.

CONTRACT PRICE.

MTS shall pay to the Contractor the value of any executed Work Orders under the Contract as full compensation for the performance of the Work Order, subject to any additions or deductions as provided in each Work Order. The Contract is an indefinite-quantity contract for construction work and services. There is no Minimum Contract Value of Work Orders that the Contractor is guaranteed the opportunity to perform under this Contract. In no event shall the value of total Work Orders exceed the statutory JOC limits under Public Contract Code Section 20128.5 ($6,576,000.00 as of December 31, 2025).

The Contractor shall perform all work required, necessary, proper for or incidental to completing the Detailed Scope of Work called for in each individual Work Order issued pursuant to this Contract for the Unit Prices set forth in the Construction Task Catalog® and the Adjustment Factors, as provided under the Bid Form.

PROVISIONS REQUIRED BY LAW.

Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents. The Contractor shall comply with all requirements of the California Labor Code applicable to this Project.

INDEMNIFICATION.

Contractor shall provide indemnification as set forth in the General Conditions.

PREVAILING WAGES.

Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates shall be made available at MTS's Administrative Office or may be obtained online at http://www.dir.ca.gov and which must be posted at the job site.

PROJECT LABOR AGREEMENT.

Contractor shall comply with MTS's Project Labor Agreement for any individual work order estimated to be $1,000,000 or more, as determined by MTS.

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM	ABC GENERAL CONTRACTOR INC.
By: _____ Sharon Cooney, Chief Executive Officer	By _____
Approved as to form:	
By: _____ Karen Landers, General Counsel	Title: _____

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Metropolitan Transit System

Agenda Item No. 06

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

On-Call Job Order Contracting (JOC) Railroad Construction Services – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Director authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. PWL456.0-26 (in substantially the same format as Attachment A), with Domestic Rail Solutions (DRS), for on-call railroad construction services, to not exceed the statutory JOC limits under Public Contract Code Section 20128.5, calculated to be in the amount of $6,576,000.00, for one (1) year beginning July 1, 2026.

BUDGET IMPACT:

The total cost of this contract is estimated to be $6,576,000.00 based on the calculated statutory JOC limits. The contract will be funded by various MTS capital budget accounts. Funding will be included in the budget of each project for which a work order will be issued under this agreement.

DISCUSSION:

JOC is a procurement method under which public agencies may accomplish frequently encountered repairs, maintenance, and construction projects through a single, competitively procured long-term agreement.

The JOC program includes a catalog of pricing for a variety of potential tasks to be performed under the contract, that have been pre-priced by our contractor, the Gordian Group. All potential contractors are subject to the pricing within this catalog. Each contractor then includes an adjustment factor, escalating their proposed price from the catalog price, to determine the total cost of the task order. The adjustment factor represents an average percentage increase over the catalog price (i.e. 1.25 adjustment factor represents 25% above the catalog price) for that respective task within the project. In order to select the lowest responsive and responsible bidder, MTS staff compares each contractor's proposed adjustment factor.

MTS's enabling legislation at Public Utilities Code Section 120222 authorizes MTS to use any procurement method authorized for state or local agencies under state or federal law. Certain public entities in California are expressly authorized to use the JOC process within limited parameters. MTS's abilities to utilize the JOC contracting process is premised upon the statutory

allowance granted to such entities. Public Contract Code Section 20128.5, effective January 1, 1998, allows the board of supervisors of a county to utilize JOCs up to $3,000,000.00 annually, adjusted annually to reflect the percent change in the California Consumer Price Index. CPI calculations through December 31, 2025 allow JOC contract amounts of up to $6,576,000.00 annually. MTS maintains internal contract administration guidelines to ensure compliance with the annual maximum in JOC work orders.

The JOC contract under consideration is for the Railroad Construction Services category of work, which includes repair, remodeling or other repetitive work involving railroad construction improvements. This includes, but is not limited to, main Continuous Welded Rail (CWR) track rehabilitation/replacement, grade crossings (pre-cast concrete panels, rubber panels, paved with rubber rail interface) special track work, direct fixation, signal systems, overhead catenary, traction power, and related civil construction improvements work; and all required incidental professional and technical services required for quality control monitoring and testing, shop drawings, safety, environmental, scheduling, traffic control, storm water pollution prevention, geotechnical, surveying, biological, and hazardous/contaminated materials.

On March 3, 2026, MTS issued an Invitation for Bids (IFB) seeking a contractor to provide JOC railroad construction services with the award provided to the contractor with the lowest cumulative adjustment factor weighted as follows:

Item 1: Normal Working Hours (Non-Railroad Right-of-Way) – 5%
Item 2: Other Than Normal Hours (Non-Railroad Right-of-Way) – 2%
Item 3: Normal Working Hours Along Railroad Right-of-Way – 75%
Item 4: Other Than Normal Hours Along Railroad Right-of-Way – 15%
Item 5: Restricted Work Shift – 3%

On April 17, 2026, two (2) bids were received from the firms listed in the table below ranked in order from lowest to highest cost factor.

Contractor	Certifications	Total Score
Domestic Rail Solutions	Small Business- Public Works (SB-PW)	1.2213
Balfour Beatty Infrastructure Inc.	N/A	1.2569

Given that the award is made to the bidder with the lowest cumulative adjustment factor over the pre-priced catalog, MTS determined that DRS was the lowest responsive and responsible bidder. Staff determined that the solicitation was conducted in a fair and open manner. Based on historical results for these and other JOC services, the Procurement staff determined DRS's adjustment factor to be fair and reasonable.

Today’s proposed action would authorize the award of this on call contract to DRS. However, no specific project or spending is authorized. Individual projects/task orders will be processed according to the signature authority set forth in Board Policy No. 41 (e.g. task orders under $150,000 will be approved by the CEO; task orders over $150,000 will require Board approval). Any individual work order estimated to be over $1,000,000.00 will require compliance with MTS's Project Labor Agreement. If subcontractors are needed for any individual work order, the Contractor will designate the list of subcontractors at that time.

MTS staff currently estimates that approximately $1,620,000 in capacity is needed for projected Railroad Construction JOC work order needs in Fiscal Year 2027. However, JOC work orders are a key tool in MTS's emergency response and recovery plan since they provide an expedited path to authorize work at competitively set rates. They also sometimes accommodate work that is funded by new grant opportunities that were not anticipated at the time of the JOC contract award. Therefore, staff recommends this proposed JOC master agreement allow JOC work orders up to the annual statutory limit of $6,576,000 to provide capacity for emergencies and other unexpected funding allocations and project work.

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute MTS Doc. No. PWL456.0-26 (in substantially the same format as Attachment A), with DRS, for on-call railroad construction services, to not exceed the statutory JOC limits under Public Contract Code Section 20128.5, calculated to be in the amount of $6,576,000.00, for one (1) year beginning July 1, 2026.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachment: A. Draft Standard Construction Agreement, MTS Doc. No. PWL456.0-26

Metropolitan Transit System

STANDARD CONSTRUCTION AGREEMENT

FOR

MTS DOC. NO. PWL456.0-26

JOC GENERAL RAILROAD CONSTRUCTION SERVICES

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: Domestic Rail Solutions, Corp.

Address: 160 S. Old Springs Rd. Ste 102

Anaheim CA 92808
City State Zip

Form of Business: Corporation
(Corporation, Partnership, Sole Proprietor, etc.)

Email: paul@drscontractinginc.com

Telephone: 714-800-3797

Authorized person to sign contracts Paul Marshall COO
Name Title

The specified Contract Documents are part of this Agreement. The Contractor agrees to furnish to MTS services and materials, as follows:

Contractor shall furnish all necessary management, supervision, labor, materials, tools, supplies, equipment, plant, services, engineering, testing and/or any other act or thing required to diligently and fully perform and complete the Project as specified in the General Conditions (Exhibit A), Scope of Work (Exhibit B), and in accordance with the Standard Construction Agreement and Special Conditions (Exhibit C), JOC Special Conditions (Exhibit D), Federal Requirements (Exhibit E), Forms (Exhibit F), Bid Form (Exhibit G), Contractor Bonds (Exhibit H), Construction Task Catalog (Exhibit I), and Technical Specifications (Exhibit J). All Exhibits to this agreement are attached separately on PlanetBids.

SCOPE OF WORK.

Contractor, for and in consideration of the payment to be made to Contractor as hereinafter provided, shall furnish all plant, labor, technical and professional services, supervision, materials and equipment, other than such materials and equipment as may be specified to be furnished by MTS, and perform all operations necessary to complete the Work in strict conformance with the Contract Documents (defined below) for the following public work of improvement:

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

JOC GENERAL RAILROAD CONSTRUCTION SERVICES

Contractor is an independent contractor and not an agent of MTS. The Contractor and its surety shall be liable to MTS for any damages arising as a result of the Contractor's failure to comply with this obligation.

CONTRACT TIME.

This agreement shall be valid for a period of one (1) base year. Base period shall be effective July 1, 2026 through June 30, 2027. Time is of the essence in the performance of the Work for each subsequent Work Order. The Work shall be commenced by the date stated in MTS's Notice to Proceed in the first Work Order of the Contract. The Contractor shall complete all Work required by the Contract Documents within the days specified in each Work Order.

CONTRACT PRICE.

MTS shall pay to the Contractor the value of any executed Work Orders under the Contract as full compensation for the performance of the Work Order, subject to any additions or deductions as provided in each Work Order. The Contract is an indefinite-quantity contract for construction work and services. There is no Minimum Contract Value of Work Orders that the Contractor is guaranteed the opportunity to perform under this Contract. In no event shall the value of total Work Orders exceed the statutory JOC limits under Public Contract Code Section 20128.5 ($6,576,000.00 as of December 31, 2025).

The Contractor shall perform all work required, necessary, proper for or incidental to completing the Detailed Scope of Work called for in each individual Work Order issued pursuant to this Contract for the Unit Prices set forth in the Construction Task Catalog® and the Adjustment Factors, as provided under the Bid Form.

PROVISIONS REQUIRED BY LAW.

Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents. The Contractor shall comply with all requirements of the California Labor Code applicable to this Project.

INDEMNIFICATION.

Contractor shall provide indemnification as set forth in the General Conditions.

PREVAILING WAGES.

Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates shall be made available at MTS's Administrative Office or may be obtained online at http://www.dir.ca.gov and which must be posted at the job site.

PROJECT LABOR AGREEMENT.

Contractor shall comply with MTS's Project Labor Agreement for any individual work order estimated to be $1,000,000 or more, as determined by MTS.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM	DOMESTIC RAIL SOLUTIONS CORP.
By: _____ Sharon Cooney, Chief Executive Officer Approved as to form: By: _____ Karen Landers, General Counsel	By _____ Title: _____

Metropolitan Transit System

Agenda Item No. 07

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Orange Line (OL) Phase 2 Construction Services – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. PWL445.0-25 (in substantially the same format as Attachment A), to Balfour Beatty Infrastructure, Inc. (Balfour) for the OL Phase 2 Construction Services in the amount of $58,397,969.61, plus a 10% contingency for change orders administered by the CEO, for a total of $64,237,766.57.

Budget Impact

The total cost of this contract is estimated to be $58,397,969.61 plus a 10% contingency of $5,839,796.96 for a total of $64,237,766.57. Project funding includes a $48,315,712 Transit and Intercity Rail Capital Program (TIRCP) grant awarded in 2023 for the Orange Line Phase 2 Project. The TIRCP funds will be applied toward construction and construction management costs. The remaining project costs will be funded through Capital Improvement Program (CIP) Account 2005123501, Orange Line – Rail Signals Phase 2.

DISCUSSION:

The Orange Line Phase 2 Project will upgrade the signaling system between Massachusetts Avenue Station and El Cajon Transit Center to align with the systems deployed on Orange Line Phase 1 and the Mid-Coast Extension. The improvements will enhance operational flexibility and service reliability by enabling higher operating speeds, bidirectional train movements, reverse-running capabilities, and improved on-time performance.

In February 2023, MTS submitted the Zero-Emission Transit Enhancement 2.0 Project application for Cycle 6 of the Transit and Intercity Rail Capital Program (TIRCP), which included funding for the Orange Line Phase 2 Project. In April 2023, the project was selected for TIRCP funding as part of the San Diego region's awarded projects.

MTS conducted a prequalification process to evaluate and establish a pool of contractors with the necessary experience, qualifications, technical capabilities, and financial capacity to perform the work. The Prequalification for Bidders was issued on July 8, 2025, and the results were posted on October 7, 2025. The prequalification process resulted in a list of approved bidders eligible to participate in the subsequent Invitation for Bids (IFB).

On January 8, 2026, staff issued an IFB. A total of four (4) bids were received by the deadline of March 25, 2026, and are summarized as follows:

Firm Name	Firm Certification	Bid Amount
Creation World Inc. *	Minority Business Enterprise (MBE)	N/A
Balfour	N/A	$58,397,969.61
Herzog Technologies, Inc.	N/A	$65,492,485.92
Stacy & Witbeck	N/A	$70,962,426.20

** Non-responsive. The bidder was not prequalified and therefore was ineligible to submit a bid. In addition, no bid or required forms were submitted. Marketing materials were submitted in lieu of a bid response.*

Based on the bids received, staff determined Balfour to be the lowest responsive, and responsible bidder and deemed their price to be fair and reasonable in comparison with MTS's Independent Cost Estimate (ICE) of $57,849,192.40.

The Contractor will be using the following subcontractors:

SUBCONTRACTOR NAME	FIRM CERTIFICATIONS
Jerusalem Construction Inc. DBA Miramar General Engineering	Small Business (SB (Micro))
Econo Fence, LLC	N/A
Condon-Johnson & Associates	N/A

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute Doc. No. PWL445.0-25 (in substantially the same format as Attachment A), to Balfour for the OL Phase 2 Construction Services in the amount of $58,397,969.61, plus a 10% contingency for change orders administered by the CEO, for a total of $64,237,766.57.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, julia.tuer@sdmts.com

Attachments: A. Draft Agreement, MTS Doc. No. PWL445.0-25
B. Scope of Work/Technical Specifications
C. Bid Form

Metropolitan Transit System

STANDARD CONSTRUCTION AGREEMENT

FOR

MTS DOC. NO. PWL445.0-25

ORANGE LINE IMPROVEMENT PROJECT – PHASE 2

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: Balfour Beatty Infrastructure, Inc.

Address: 640 E. Arrow Hwy

La Verne (City) CA (State) 91750 (Zip)

Form of Business: Corporation
(Corporation, Partnership, Sole Proprietor, etc.)

Email: kmccoy@balfourbeattyus.com

Telephone: 214-437-9624

Authorized person to sign contracts Keith McCoy (Name) Senior Vice President (Title)

The specified Contract Documents are part of this Agreement. The Contractor agrees to furnish to MTS services and materials, as follows:

Contractor shall furnish all necessary management, supervision, labor, materials, tools, supplies, equipment, plant, services, engineering, testing and/or any other act or thing required to diligently and fully perform and complete the Project as specified in accordance with the Standard Agreement and General Conditions (Exhibit A), Scope of Work, Special Conditions and Attachments (Exhibit B), Bid Price Form (Exhibit C), and Forms (Exhibit D).

SCOPE OF WORK.

Contractor, for and in consideration of the payment to be made to Contractor as hereinafter provided, shall furnish all plant, labor, technical and professional services, supervision, materials and equipment, other than such materials and equipment as may be specified to be furnished by MTS, and perform all operations necessary to complete the Work in strict conformance with the Contract Documents (defined below) for the following public work of improvement:

ORANGE LINE IMPROVEMENT PROJECT – PHASE 2

Contractor is an independent contractor and not an agent of MTS. The Contractor and its surety shall be liable to MTS for any damages arising as a result of the Contractor's failure to comply with this obligation.

CONTRACT TIME.

Time is of the essence in the performance of the Work. The Work shall be commenced by the date stated in MTS's Notice to Proceed. The Contractor shall complete all Work required by the Contract Documents within 1,157 calendar days from the commencement date stated in the Notice to Proceed. Refer to Section 1.05B of ATT 1 for substantial completion requirements. By its signature hereunder, Contractor agrees the Contract Time is adequate and reasonable to complete the Work.

CONTRACT PRICE.

MTS shall pay the Contractor as full compensation for the performance of the Contract, subject to any additions or deductions as provided in the Contract Documents, and including all applicable taxes and costs, the sum of fifty-eight million three hundred ninety-seven thousand nine hundred sixty-nine and sixty-one cents ($58,397,969.61). Payment shall be made as set forth in the General Conditions.

PROVISIONS REQUIRED BY LAW.

Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents. The Contractor shall comply with all requirements of the California Labor Code applicable to this Project.

INDEMNIFICATION.

Contractor shall provide indemnification as set forth in the General Conditions.

PREVAILING WAGES.

Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates shall be made available at MTS's Administrative Office or may be obtained online at http://www.dir.ca.gov and which must be posted at the job site.

PROJECT LABOR AGREEMENT.

Contractor shall comply with MTS's Project Labor Agreement in the performance of the Work.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM	BALFOUR BEATTY INFRASTRUCTURE, INC.
By: _____ Sharon Cooney, Chief Executive Officer Approved as to form: By: _____ Karen Landers, General Counsel	By _____ Title: _____

ORANGE LINE IMPROVEMENTS
PHASE 2 SPECIFICATIONS
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SECTION	DESCRIPTION
01 00 00	General Requirements
03 21 00	Reinforcing Steel
03 31 00	Structural Concrete
05 52 00	Handrails and Railings
09 61 50	Detectable Warning Panels
09 90 00	Painting and Coatings
10 14 55	Railroad Signage
31 11 00	Site Clearing
31 11 50	Demolition, Cutting and Patching
31 23 00	Excavation and Fill
31 50 00	Excavation Support
32 01 17	Trench Resurfacing
32 11 16	Aggregate Base
32 12 00	Hot Mix Asphalt Pavement
32 16 00	Curbs, Gutters and Sidewalks
32 17 23	Pavement Markings
32 31 13	Chain Link Fencing and Gates
32 32 16	Gravity Block Retaining Walls
33 42 00	Culvert and Drainage Pipe
34 11 13	Track Rails
34 11 16.19	Thermite-Welded Track Rail
34 11 19	Track Rail Joints
34 11 26.13	Track Rail Ballast
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34 11 33	Concrete Railroad Ties
34 11 33.16	Timber Track Cross Ties

SECTION	DESCRIPTION
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34 11 93	Track Appurtenances and Accessories
34 23 33	OCS Foundations and Down Guy Anchor Foundations
34 23 36	OCS Steel Structures, Metal Fabrications, and Miscellaneous Metals
34 23 39	Metal OCS Poles
34 23 43	OCS Design Requirements
34 23 46	Ground and Bonding of OCS Assemblies
34 23 49	OCS Supporting Devices
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34 23 56	OCS Stainless Steel Wire Rope
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34 23 63	OCS Insulator
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34 23 76	OCS Disconnect Switches
34 23 79	OCS Uninsulated Conductors and Cables
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34 42 01	Transportation Signaling and Control
34 42 02	Spare Parts
34 42 13.13	General Railway Signal Requirements
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34 42 13.19	Signal System Grounding
34 42 13.20	Relays
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34 42 13.22	Switch and Lock Movement
34 42 13.24	Wayside Signal Assembly
34 42 13.25	Rail Bonding
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34 42 16	Train Control Wire and Cable
34 42 19.01	Vital Logic Controller
34 42 23	Railway Control Equipment
34 42 26.13	Signal System Fiber Optic Network
34 42 62	Service Meters
34 71 50	Highway-Rail Grade Crossings
34 72 10	Rail Track Removal
34 72 13	Railway Line Construction
34 72 13.10	Special Trackwork Construction
34 72 13.12	Track Shifting and Resurfacing

SECTION 01 00 00
GENERAL REQUIREMENTS

PART 1 – GENERAL

1.01 REFERENCES

A. References to Articles herein are with respect to the MTS Procurement Document for the Project, including:

1. Information and Instructions for Bidders
2. Standard Construction Agreement and General Conditions
3. Special Conditions
4. Standard Specifications & Special Provisions (Water Pollution and Erosion Control)

B. The latest revisions of the following documents shall be incorporated as reference.

1. Caltrans Standard Specifications (Standard Specifications, Current Edition)
2. Standard Specifications for Public Works Construction (SSPWC, Current Edition or unless otherwise specified in the technical specifications)
3. City of San Diego Whitebook (City Standard Specifications, Supplement to SSPWC Current Edition)
4. San Diego Regional Standard Drawings (SDRSD), Current Edition
5. AREMA Manual for Railway Engineering (AREMA Manual), Current Edition
6. AREMA Communications & Signals Manual (C&S Manual), Current Edition
7. AREMA Portfolio of Trackwork Plans, Current Edition
8. Caltrans' California Trenching and Shoring Manual, Current Edition
9. Precast/Prestressed Concrete Institute (PCI) Design Handbook, Current Edition
10. LOSSAN Corridor Engineering Standard Drawings
11. California Public Utilities Commission (CPUC) General Order 164-E

C. Where the SSPWC is referenced, the Contractor shall be responsible for the inclusion of the City Standard Specifications (Whitebook) along with that reference.

1.02 SUMMARY OF WORK

A. A high-level summary of work is provided here. Refer to the technical specifications for additional details.

B. Prequalification

1. This Project required the prequalification of all Contractors and Subcontractors that will perform work in the specialized areas of Railroad Signaling, Overhead

Catenary System (OCS), and/or Special Trackwork for the Construction of Orange Line Train Control Improvements – Phase 2. All Contractors performing Work in these areas shall be on the following lists;

a. Approved Prime Bidders List – Construction of the Orange Line Train Control Improvements – Phase 2.

b. Approved Railroad Signaling Specialty Contractors List – Construction of the Orange Line Train Control Improvements – Phase 2.

c. Approved Overhead Catenary System Specialty Contractors List – Construction of the Orange Line Train Control Improvements – Phase 2

d. Approved Special Trackwork Specialty Contractors List – Construction of the Orange Line Train Control Improvements – Phase 2.

2. The following Key Personnel are required for the project:

a. Project Manager

b. Construction Superintendent

c. Safety Manager

d. Quality Manager

e. Signal Engineer (2 personnel required to support related AWW)

f. Superintendent of Overhead Catenary Systems (OCS)

g. OCS Foreman (2 personnel required to support related AWW)

h. Superintendent of Track

3. Within 14 calendar days of NTP, Contractors shall be required to formally submit key personnel meeting the experience requirements defined in the prequalification document, to MTS for approval. MTS review of the proposed candidate for each position may include an interview by a panel chosen by MTS. Candidates not deemed qualified shall be replaced by the Contractor with alternate candidates, until an acceptable candidate is chosen.

C. The Work to be done includes furnishing all necessary labor, equipment, and materials for:

1. Civil Improvements

a. Drainage modification at El Cajon Station.

b. Concrete barrier installation at Lemon Ave.

c. CPUC GO-88B grade crossing Improvements at the following locations:

1) City of Lemon Grove

a) Broadway

2) City of La Mesa

a) Lemon Avenue

b) La Mesa Blvd

c) Allison

d) University

d. Station Track Improvements

1) 47th Street Station

2) La Mesa Station

3) El Cajon Station

2. Curved worn rail replacements

a. Near Spring Street Station

1) Curve 1

2) Curve 2

3) Curve 3

4) Curve 4

5) The curved worn rail replacements will extend through the Spring Street Station pedestrian crossings and the crossing panels shall be replaced.

b. Baltimore Junction area

1) Curve 5

3. Special Trackwork

a. Installation of four (4) MTS furnished #11 single crossovers.

b. Conversion of one (1) existing manual #10 crossover to MTS furnished power operated turnouts. (Existing E356WL; Future E14)

Existing manually operated turnouts are equipped with Switch Circuit Controllers (SWCC) and Electric Switch Locks. The Owner provided Track Switch Conversion Packages consist of new maintenance length stock rails, switch points, bolted heel-block assemblies, pre-plated ties #0 through #12, chairs & anchors and #1 (w/basket), #2 & #3 insulated gauge rods & transit clips. Crossover shall be removed from service, existing switch lock and SWCC retired, switch points, bolted heel-blocks and stock rails removed and #0 through #12 ties & plates removed. Remove ballast 6"-9" below the tie, compact sub-ballast/hard pack, install geotextile fabric and new ballast. Install new ties/plates, stock rails, switch points, chairs & anchors and gauge rods.

25 each, 9' #1 treated hardwood ties are being provided for each turnout to "spot" replace ties deemed necessary by the Engineer.

c. Replacement of eleven (11) power switch machines and associated special track work with MTS provided material. (Existing E12, E18, E20, E22 and E24; Future R26, R30, E6, E10 and E22)

Existing power operated #10 turnouts at E12 interlocking are equipped with M-23-A switch machines mounted on nonstandard head-block ties and switch plates. The Owner provided Track Switch Upgrade Packages for #10 turnouts consist of new ties and plates #0 through #12, chairs and anchors, #1 (w/basket), #2 & #3 insulated gauge rods & transit clips. Existing power switch machines and associated track materials shall be retired and replaced with new M-23-A machines and associated track materials. Existing #0 through #12 ties and plates shall be removed and replaced with new ties, plates and ballast.

Existing power operated #10 turnouts at E18 and E20 interlocking (E17B & E19B switches only) are equipped with M-23-A switch machines mounted on nonstandard head-block ties and switch plates. The Owner provided Track Switch Upgrade Packages for the (E17B & E19B) #10 turnout consist of new maintenance length stock rails, switch points, bolted heel-block assemblies, pre-plated ties #0 through #12, chairs & anchors and #1 (w/basket), #2 & #3 insulated gauge rods & transit clips. Existing power switch machines and associated track materials shall be retired and replaced with new M-23-A machines and associated track materials. Existing #0 through #12 ties and plates shall be removed and replaced with new ties, plates and ballast.

Existing power operated #10 turnout at E18 interlocking (E17A switch only) is equipped with M-23-A switch machine mounted on nonstandard head-block ties and switch plates. The Owner provided Track Switch Upgrade Package for (E17A) #10 turnout consist of new ties and plates #0 through #12, chairs and anchors, #1 (w/basket), #2 & #3 insulated gauge rods & transit clips and switch points (19’ 6”) for bolted heel blocks. Existing power switch machines and associated track materials shall be retired and replaced with new M-23-A machines and associated track materials. Existing #0 through #12 ties and plates shall be removed and replaced with new ties, plates and ballast.

Existing power operated #20 turnouts at E12 interlocking are equipped with M-23-A switch machines mounted on nonstandard head-block ties and switch plates and push/pull helper rod assemblies. Existing power operated #20 turnouts at E22 and E24 interlockings are equipped with GRS 5-H switch machines mounted on nonstandard head-block ties and switch plates and push/pull helper rod assemblies. The Owner provided Track Switch Upgrade Packages for #20 turnouts consist of new ties and plates #0 through #13, #1 (w/ basket), #5 (w/ basket), #2, through #4 insulated gauge rod & transit clips. New 10’ #1 treated hardwood ties and plates #3 through #13. Existing power switch machines and associated track materials shall be retired and replaced with new M-23-A machines and associated track materials. Existing #0 through #13 ties and plates shall be removed and replaced with new ties, plates, and ballast.

25 each, 9' #1 treated hardwood ties are being provided for each turnout to "spot" replace ties deemed necessary by the Engineer.

d. Installation of MTS furnished shop bonded insulated joint plugs on tangent and curved track.

e. Removal of existing insulated joints and replacement with rail plugs.

4. Overhead Catenary System (OCS)

a. OCS installation to support four (4) new #11 single crossovers.

b. Modifications to Sectionalization.

c. Complete preconstruction and post track installation measurements at Baltimore Junction to maintain existing catenary wire stagger when new track diamond is installed and track centerline shifts. Make adjustment to catenary as required.

5. Railroad Signal and Communications

a. Interlocking and Automatic Block System (ABS) replacement of existing relay logic locations, install and commission vital microprocessor control systems to support bidirectional running.

b. Crossing warning device, train detection system and crossing warning system replacement.

c. CPUC GO-88B improvements at five (5) grade crossings:

1) City of Lemon Grove

a) Broadway

2) City of La Mesa

a) Lemon Avenue

b) La Mesa Boulevard

c) Allison Avenue

d) University Avenue

d. Installation of twenty-nine (29) Owner Furnished train control/crossing instrument enclosures along the right-of-way.

e. Installation of underground infrastructure, vaults and pull boxes.

f. Installation of impedance bonds, associated wiring, and track connections.

g. Modification of existing overhead aerial or underground fiber optic cable to support vital and non-vital applications.

h. Establishment of new or conversion of existing commercial power meter services.

6. Construction Phasing and Handoff Activities

a. Inspection, receipt, handling, transport, storage, installation, testing and commissioning of Owner Furnished Materials. This material is listed in Part 2 herein and is referenced in the Technical Specifications.

b. Participation in Factory Acceptance Testing (FAT) of Owner Furnished Signal Instrument Enclosures for release and delivery of enclosures to Contractor for field installation. Receipt, handling, storage, field installation, testing and commissioning of Signal Instrument Enclosures.

c. Participation in FAT in Williamsburg, Virginia to observe demonstration and testing of Owner Furnished Vital Application Software for release and transmittal of software to Contractor for each Segment signal cutover.

d. Coordination with MTS to finalize Temporary Interface Case #1 and #2 configurations to support phasing of the project in eight (8) successive Segments. The division of the work for the Temporary Interface Cases are as follows:

1) Within 30 days of Notice to Proceed, Contractor shall notify MTS whether they intend to propose alternative signal phasing. The Contractor's phasing approach must be understood in order for the Engineer to develop the interface case wiring diagrams.

2) During construction, MTS will provide the Contractor with Temporary Interface Case (TIC) Wiring Diagrams that are compatible with the MTS Owner Furnished Software.

3) Contractor shall wire the TICs and connect field wiring.

a) TICs #1 and #2 will not be prewired for their first use. The Contractor shall perform initial wiring and all successive wiring modifications of these cases.

b) Contractor shall provide wire, tags, connectors and consumable materials. Contractor shall also provide lightning arresters and test clips, with all terminated case wire. For bidding purposes, Contractor shall assume 184 lightning arresters and test clips are required.

c) Contractor shall provide 25-ohm resistors for battery leaving the interface case to support line circuits. For bidding purposes, Contractor shall assume twelve (12) 25-ohm resistors are required.

d) The Contactor shall provide a 5A fuse for each AC vane relay transformers and a 3A fuse for each AC vane relay. For bidding purposes, Contractor shall assume four (4) 5A fuses and four (4) 3A fuses are required.

e) The Contractor shall provide 19 conductor #14 underground cable, #6 flex wire, and Category 5e Ethernet cable to support the connections between the interface case, the new signal enclosure and the legacy equipment. For bidding purposes, Contractor shall assume one minimum 100-foot 19 conductor #14 underground cable, 500 feet of #6 flex wire and 50 feet of Category 5e Ethernet cable is required.

4) Contractor shall install, test and commission the TICs.

a) TICs shall be installed on foundations.

5) Contractor shall remove, salvage and rewire TICs for the next location designated in the construction phasing plan.

a) TIC temporary foundations shall be removed when they are relocated.

6) At the end of the Orange Line Improvements Project - Phase 1 (by Others), a temporary Interface Case will remain in service until the Phase 2 project is completed. Final turnover of temporary Interface Cases #1, #2, and the Phase 1 Temporary Interface Case to MTS shall be delivered and returned with the last wiring and configuration used, with all equipment installed.

e. Construct and perform signal systems cutover of the project in eight (8) successive Construction Segments as defined herein.

7. System Signage

a. The following new signage shall be furnished and installed by the Contractor in coordination with and approval of MTS:

1) Approach Interlocking Signs (4 total signs per Interlocking as detailed in Drawing GEN_23A) shall be added and/or replaced at the following Interlockings:

a) R22

b) R26

c) R30

d) E6

e) E10

f) E14

g) E18

h) E22

2) Speed signage near La Mesa Station

3) ENS (Emergency Notification Signage) at pedestrian crossings at:

a) 47th Street Station

b) La Mesa Station

c) El Cajon Station

b. New sign placements shall be proposed by the Contractor and approved by MTS Operations staff prior to installing any signage in the field.

D. CPUC General Order 164-E and Construction Segments

1. 49 CFR 674 requires a Safety Certification Program to be in place for this Project with the CPUC designated as State oversight. The Orange Line Phase 2 Project has been classified as a Major Project due to its replacement of the existing train control system with more modern technology.

2. A Safety Certification Plan has been submitted to the CPUC which defines the following Segments for construction, testing, and the requirement to receive safety certification for each prior to beginning revenue service. Each Segment transition occurs at an Interlocking location, where an interface can be arranged to accommodate both the existing and new train control technology.

    a. Segment 1

        1) E1653RC – E26 Interlocking / Palm Avenue

        2) E1653RCA – E26 Interlocking

        3) E1621RC – Intermediate Signals

        4) E1616RC – Hill Street / Intermediate Signal

        5) E1571RC – Intermediate Signals

        6) E1567RC – Intermediate Signals

        7) E1527RC – E22 Interlocking

        8) Temporary Interface Case #1

    b. Segment 2

        1) E1507RC - AFO

        2) E1471RC – Severin Drive / Intermediate Signal

        3) E1455RC – Intermediate Signal

        4) E1445RC - AFO

        5) E1424RC – E18 Interlocking

        6) Temporary Interface Case #2

        7) Removal of Temporary Interface Case #1, Segment 1

    c. Segment 3

        1) E1394RC – Intermediate Signal

        2) E1370RC – E14 Interlocking

        3) E1316RC – E10 Interlocking

        4) Temporary Interface Case #1

        5) Removal of Temporary Interface Case #2, Segment 2

    d. Segment 4

        1) E1297RC – E6 Interlocking

2) E1291RC – E6 Interlocking

3) Temporary Interface Case #2

4) Removal of Temporary Interface Case #1, Segment 3

e. Segment 5

1) R1279RC – R30 Interlocking / I-8 Ramps / Ped Crossing

2) R1266RC – I-8 Ramps / Ped Crossing

3) Temporary Interface Case #1

4) Removal of Temporary Interface Case #2, Segment 4

f. Segment 6

1) R1256RC – University Avenue

2) R1241RC – Allison Avenue / Intermediate Signal

3) R1230RC – La Mesa Boulevard

4) R1224RC – Lemon Avenue / Intermediate Signal

5) R1199RC – Cut Section

6) R1174RC – Intermediate Signal

7) R1114RC – Intermediate Signal

8) R1075RC – High Street / R26 Interlocking

9) R1050RC – R26 Interlocking

10) Temporary Interface Case #2

11) Removal of Temporary Interface Case #1, Segment 5

g. Segment 7

1) R1038RC – North Avenue

2) R1025RC – Broadway / Intermediate Signal

3) R1000RC – Central Avenue / Intermediate Signal

4) R967RC – San Miguel Avenue

5) R945RC – R22 Interlocking

6) Temporary Interface Case #1

7) Removal of Temporary Interface Case #2, Segment 6 (Return to MTS)

h. Segment 8

1) R917RC – Cut Section

2) R886RC – Massachusetts Avenue / Intermediate Signal

3) R847RC – R18 Interlocking (Phase 1)

4) Removal of Temporary Interface Case #1, Segment 7 (Return to MTS)

5) Removal of Temporary Interface Case, Phase 1 (Return to MTS)

3. The Contractor shall support MTS to complete, document and verify Safety Certification Tasks that shall require timely delivery of Contractor led items, including but not limited to integration testing and associated test documentation, dynamic testing, operations/maintenance manual submission, and asbuilt documentation.

4. Each Segment shall receive separate certification and cannot be placed into service without CPUC approval.

1.03 ORDER OF WORK

A. Order of work shall be in accordance with Article 5.7, Construction Sequence, of the Special Conditions and these Technical Specifications. In general, the work shall be constructed in the following order as defined in Article 1.02, Summary of Work, of these Technical Specifications:

1. Segment 1

2. Segment 2

3. Segment 3

4. Segment 4

5. Segment 5

6. Segment 6

7. Segment 7

8. Segment 8

B. Non-conflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction.

C. Pre-Construction Requirements

1. Water Pollution Control Plan (WPCP)

a. A WPCP shall be developed by the Contractor in accordance with the Standard Specifications & Special Provisions (Water Pollution and Erosion Control) and submitted to MTS for approval.

2. Drug and Alcohol Compliance

a. The Contractor, its employees, subcontractors, and their employees shall comply 49 CFR, Part 655, Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations and 49 CFR Part 40, Procedures for Transportation Workplace Drug and Alcohol Testing Programs.

b. Compliant Drug and Alcohol Plans shall be submitted by the Contractor and each subcontractor for MTS review.

3. Roadway Worker Protection Training

a. Refer to Article 5.12, Roadway Workers Protection, of the Special Conditions for training requirements. Prior to the start of construction and at the Contractor's expense, all personnel entering the MTS Right-Of-Way (ROW), including subcontractors and third parties shall complete MTS Roadway Worker Protection (RWP) training course. Visit the website for information: https://www.sdmts.com/business-center-permits/safety-training. Annual renewals are required for Roadway Worker Protection Safety training should duration of construction exceed the one-year expiration date of any worker continuing to work within the railroad right-of-way. Any new worker, including subcontractors, arriving after start of work and expected to enter the railroad right-of-way shall complete training.

4. Flagging

a. Work performed within 15-feet of the outside rail of a track will require appropriate notification and flagging. All light rail transit flagging shall be provided in accordance with Article 5.13, Flagging, of the Special Conditions. If the Contractor changes the work plans, they shall notify the Engineer and MTS Flagging Coordinator not less than 24 hours prior to the pre-scheduled operation. If the Contractor neglects to notify the MTS Flagging Coordinator within this time frame, all costs for railroad flagmen shall be charged to the Contractor. The Contractor will not be assessed railroad flagging expenses when planned work is not performed due to conditions beyond their control.

5. Site Assessment by Segment

a. Prior to beginning Construction in any Segment, Contractor shall assess site with Engineer during the on-site meetings described under Article 3.02, Site Conditions and Access, herein.

6. Quality Control Plan (QCP)

a. No later than 10 calendar days after Notice to Proceed, the Contractor shall submit a QCP for review and approval by MTS. The QCP shall identify personnel, procedures, control, instructions, tests, testing frequencies, records, and forms to be used. Construction will be permitted to begin only after acceptance of the QCP. Refer to Article 1.10, Quality Control Plan, herein for requirements.

7. Safety Plan

a. No later than 10 calendar days after Notice to Proceed, the Contractor shall submit a Safety Plan for review and approval by MTS. Refer to Article 1.11, Safety Plan, herein for requirements.

D. Schedule and Work Plan Requirements

1. This project requires Work over an extended geographic area within the MTS Orange Line Right of Way. It is essential that the Progress Schedule remain updated and be integrated with specific Work Plan submittals identifying locations and Segments as defined in the Contract Documents and Article 1.02, Summary of Work herein.

2. Refer to Article 1.07, Progress Schedule, herein for schedule requirements.

3. Refer to Article 1.08, Work Plans, herein for Work Plan requirements.

E. Work Time Restrictions During Construction and Penalties for Trolley Service Disruption

1. At the end of each MTS approved work period, all railroad infrastructure shall be placed back into service without delaying normal trolley operations. Delay to trolley operations due to railroad infrastructure not being ready for service are subject to Liquidated Damages as described in Article 3.33, Time for Completion and Liquidated Damages, of the General Conditions and Article 5.1, Liquidated Damages, of the Special Conditions.

a. Liquidated Damage amounts specific to trolley service disruption shall be as follows:

1) Weekday interruption, $2100 for each increment of delay at 30-minute increments, or any part thereof.

2) Weekend interruption, $1200 for each increment of delay at 30-minute increments, or any part thereof.

2. All trackwork, excavation between main tracks, Overhead Catenary System (OCS) wirework, aerial fiber installation/modification, and signal related trackwork shall be allowed only during non-revenue periods and weekend Absolute Work Windows (AWW)'s.

3. All Work that fouls or has the potential to foul both tracks shall occur outside of revenue service (during non-revenue service). Weekday non-revenue service on the Westbound and Eastbound tracks are generally as described below:

Station	East Track Clear	Approx. Window in hours(h), minutes(m)	West Track Clear	Approx. Window in hours(h), minutes(m)	Both Tracks Clear	Approx. Window in hours(h), minutes(m)
47th	12:07AM – 4:02AM	3h55m	1:00AM – 5:00AM	4h	1:00AM – 4:02AM	3h2m

Station	East Track Clear	Approx. Window in hours(h), minutes(m)	West Track Clear	Approx. Window in hours(h), minutes(m)	Both Tracks Clear	Approx. Window in hours(h), minutes(m)
Massachusetts	12:15AM – 4:10AM	3h55m	12:55AM – 4:47AM	3h52m	12:55AM – 4:05AM	3h10m
Lemon Grove	12:19AM - 4:11AM	3h52m	12:52AM - 4:43AM	3h51m	12:52AM - 4:10AM	3h18m
Spring	12:24AM - 4:12AM	3h48m	12:50AM - 4:40AM	3h50m	12:50AM - 4:12AM	3h22m
La Mesa	12:28AM - 4:14AM	3h46m	12:48AM - 4:37AM	3h49m	12:48AM - 4:14AM	3h26m
Grossmont	12:31AM - 4:17AM	3h46m	12:46AM - 4:34AM	3h48m	12:46AM - 4:17AM	3h31m
Amaya	12:34AM - 4:18AM	3h44m	12:44AM - 4:32AM	3h48m	12:44AM - 4:18AM	3h34m
El Cajon	12:40AM - 4:23AM	3h43m	12:42AM - 4:23AM	3h41m	12:42AM - 4:23AM	3h41m

4. Work that fouls or has the potential to foul only one track may be performed during single-track operations (where available with the project limits) or during non-revenue service.

   a. Within the project limits, the only section of track that the Contractor may request single track operations to work exclusively on is the westbound track between E6LA and E8RB, while trains operate exclusively on the eastbound track. E6 and E8 interlocking shall be in service as a condition to grant single track operations. Multiple work crews are allowed, but work crews are not permitted to foul the in-service track during single-track operations, as restrictions will not be approved on the in-service track. On-track equipment cannot be used during single track operations.

   b. Single-track operations may be requested only during revenue service periods of operation with 30-minute headways. Single-track operations will not be approved during revenue service periods of operation with 15-minute headways. Refer to MTS' existing Orange Line Schedule (MTS website).

c. Headway Information at Stations within Project Limits:

Station	Typical Headway (daytime)	Start time, increased headway (both directions, evening)	Start of Out of Service train blitz (westbound return, reduced headway for 90 minutes)
47th Street	15 minutes	9:15pm (30 minutes)	11:45pm (6 minutes*)
Massachusetts	15 minutes	9:07pm (30 minutes)	11:37pm (6 minutes*)
Lemon Grove	15 minutes	9:04pm (30 minutes)	11:34pm (6 minutes*)
Spring Street	15 minutes	9:00pm (30 minutes)	11:30pm (6 minutes*)
La Mesa Blvd	15 minutes	8:57pm (30 minutes)	11:27pm (6 minutes*)
Grossmont	7.5 minutes*	8:54pm (10 minutes*)	11:24pm (6 minutes*)
Amaya	7.5 minutes*	8:52pm (10 minutes*)	11:22pm (6 minutes*)
El Cajon	7.5 minutes*	8:48pm (10 minutes*)	11:18pm (6 minutes*)

* Contractor shall note headways are irregular due to overlapping Orange and Green line trains in these areas. The Orange Line trains follow the Green Line trains by 5 minutes.

5. San Diego and Imperial Valley (SD&IV) freight movement typically occurs Sunday night, but movement can occur any night of the week. Contractor shall recognize that Work performed shall periodically be interrupted by freight movement.

   a. Typically, freight makes a round trip one night per week. If unable to make return trip within the window, the return trip occurs the following night.

6. During AWW track outages, the OCS shall be powered down beginning 1:45 AM Saturday until 4:00 AM on Monday. All other OCS outages may occur from 1:45 AM to 4:00 AM.

   a. For specific locations, MTS deenergize/reenergize procedures will be complete within 30 minutes after/before the “Both Tracks Clear” time listed within the table in Part 1.03 E3. The Contractor can occupy the track after the last train but before the power has gone down during an AWW with proper clearance from OCS and opposite track.

7. The Contractor shall conform to additional requirements specified in Article 3.19, Maintaining Rail Traffic, of these Technical Specifications.

F. Weekend Absolute Work Windows (AWWs)

1. The Contract Documents outline potential construction phasing utilizing the 16 AWW’s for bidding purposes. Contractor’s schedule and work plans shall propose phasing to complete construction with no more than 16 AWW.

   a. Incentive Payment

1) Should the Contractor implement a construction approach that reduces the number AWWs while maintaining the schedule milestones, MTS shall issue via Change Order an incentive payment of $50,000 for each eliminated AWW at the time of Substantial Completion.

2. Weekend AWW's shall be requested a minimum of thirty (30) calendar days in advance of the work requiring the AWW's.

   a. The Contractor shall schedule a meeting with MTS to discuss each proposed AWW within 7 calendar days of submitting the request.

   b. Each AWW requested shall be separated by a minimum of 30 days (no more than one AWW per month).

   c. Within the La Mesa city limits, AWW work activity shall be limited to no more than one street at a time.

   d. The request shall include the Contractor's work plan clearly demonstrating, including but not limited to, a detailed schedule, plans showing the work, staging areas, number of personnel and each person's duties, proof of roadway worker safety training for each person for MTS, plans to protect-in-place existing infrastructure not affected by the Contract Documents, third-party suppliers that may be entering the right-of-way, approval of all related submittals, traffic control plans approved by the City of San Diego, equipment types, and contingency plans to ensure restoration of normal trolley operations at the end of the AWW.

   e. The advance notice is no guarantee that a weekend AWW will be granted on the dates requested.

   f. If the Contractor cancels an AWW request, MTS shall be notified a minimum of five (5) calendar days prior to the scheduled AWW.

3. The following AWW weekend timeframes have been proposed on a preliminary basis to MTS Operations Staff and found to be acceptable for this Work. NTP + Calendar days are provided to the Contractor as potential timeframes for each AWW to demonstrate a path to complete the work within the Substantial Completion and Contract Completion deadlines defined in Part 1.05. The Contractor shall be responsible to formally propose each AWW weekend with complete work plan documentation to gain MTS formal approval, with or without deviations from what is described herein. The Contractor's delivery of the project shall be closely tracked and monitored through the Project Schedule in Part 1.07. For bidding purposes, the 16 AWW to support construction phasing are as follows:

   a. AWW 1

      1) Timeframe

         a) NTP + 183 calendar days (Month 6)

      2) Orange/Green Line Bus Bridge Limits

         a) Begin Bridge: Grossmont Station

         b) End Bridge: El Cajon Station

      3) Major Activities

a) Installation of new E18 #11 crossover

b) Installation of new E18 power switch machines and switch point protection

b. AWW 2

1) Timeframe

a) NTP + 213 calendar days (Month 7)

2) Orange/Green Line Bus Bridge Limits

a) Begin Bridge: Grossmont Station

b) End Bridge: El Cajon Station

3) Major Activities

a) Installation of new E18 #11 crossover

b) Installation of new E18 power switch machines and switch point protection

c. AWW 3

1) Timeframe

a) NTP + 243 calendar days (Month 8)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: El Cajon Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: El Cajon Station

4) Major Activities

a) Installation/Replacement of double crossover OCS wire at E18

b) Replacement of existing switch machines at (Existing E24/Future E22) Interlocking

c) Replacement of existing switch machines at (Existing E18/Future R30) Interlocking

d) Installation of Crossing Panels at University Avenue

e) Conversion of existing embedded track to open ballast at La Mesa Station.

d. AWW 4

1) Timeframe

a) NTP + 274 calendar days (Month 9)

2) Green Line Bus Bridge Limits

a) Begin Bridge: Grossmont Station

b) End Bridge: Santee Station

3) Prerequisites

a) All Green Line fiber work shall be completed between E27 and E22 Interlockings

b) Ruggedized cellular router device shall be installed in E26 and configured to provide interim MTS signal maintenance connection until AWW 16 is completed.

4) Major Activities

a) Signal and Communications Segment 1 cutover

b) E22 Interlocking placed in operation

c) Upgraded crossing at Hill Street

d) Bidirectional operation between E22 Interlocking and El Cajon Station.

e) Interface Case #1 bridges legacy relay logic to the West and E1527 ElectroLogIXS.

e. AWW 5

1) Timeframe

a) NTP + 304 calendar days (Month 10)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: El Cajon Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: El Cajon Station

4) Major Activities

a) Installation switch conversion package at E356 (Future E14)

b) Replacement of existing switch machines at (Existing E22/Future E10) Interlocking

c) Installation of Crossing Panels at Allison Avenue

f. AWW 6

1) Timeframe

a) NTP + 365 calendar days (Month 12)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: El Cajon Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: El Cajon Station

4) Prerequisites

a) All Green Line fiber work shall be completed between E22 and E18 Interlockings

5) Major Activities

a) Signal and Communications Segment 2 cutover

b) Removal of Interface Case #1

c) E18 Interlocking placed in operation

d) Upgraded crossing at Severin Drive

e) Bidirectional operation between E18 Interlocking and El Cajon Station

f) Interface Case #2 bridges legacy relay logic to the West and to E1424RC ElectroLogIXS.

g) Installation of Crossing Panels at La Mesa Blvd.

g. AWW 7

1) Timeframe

a) NTP + 396 calendar days (Month 13)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: El Cajon Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: El Cajon Station

4) Prerequisites

a) Complete field measurements of OCS catenary prior to single track diamond replacement

5) Major Activities

a) Replacement of Baltimore Junction Single Track Diamond

b) Replacement of existing #10 turnout with new #11 turnout

c) Curve worn rail replacement within the area of Baltimore Junction

d) Adjust of OCS catenary to match overhead contact measurements taken prior to track replacement

e) Replacement of existing switch machines at (Existing E20/Future E6) Interlocking

h. AWW 8

1) Timeframe

a) NTP + 456 calendar days (Month 15)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: El Cajon Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: El Cajon Station

4) Prerequisites

a) All Green Line fiber work shall be completed between E18 and E10 Interlocking

b) Existing SDG&E electrical line relocated by Others at El Cajon Station

5) Major Activities

a) Signal and Communications Segment 3 cutover

b) Removal of Interface Case #2

c) E14 Interlocking placed in operation

d) E10 Interlocking placed in operation

e) Bidirectional operation between E10 Interlocking and El Cajon Station

f) Interface Case #1 bridges legacy relay logic to the West and to E1316RC ElectroLogIXS.

g) Installation of Crossing Panels at Lemon Ave.

h) El Cajon Station Track Replacement and Drainage Improvements

i. AWW 9

1) Timeframe

a) NTP + 487 calendar days (Month 16)

2) Orange Line Bus Bridge Limits

a) Begin Bridge: Massachusetts Station

b) End Bridge: Grossmont Station

3) Major Activities

a) Installation of new R22 #11 crossover

b) Installation of new R22 power switch machines and switch point protection

c) Curve worn rail replacement in the vicinity of Spring Street Station (Curve 3).

j. AWW 10

1) Timeframe

a) NTP + 517 calendar days (Month 17)

2) Orange Line Bus Bridge Limits

a) Begin Bridge: Massachusetts Station

b) End Bridge: Grossmont Station

3) Major Activities

a) Installation of new R22 #11 crossover

b) Installation of new R22 power switch machines and switch point protection

c) Curve worn rail replacement in the vicinity of Spring Street Station (Curves 1&2)

k. AWW 11

1) Timeframe

a) NTP + 548 calendar days (Month 18)

2) Orange Line Bus Bridge Limits

a) Begin Bridge: Massachusetts Station

b) End Bridge: Spring Street Station

3) Major Activities

a) Installation/Replacement of double crossover OCS wire at R22

b) Replacement of existing switch machines at (Existing E12/Future R26) Interlocking

c) Installation of crossing panels at Broadway

l. AWW 12

1) Timeframe

a) NTP + 578 calendar days (Month 19)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: Grossmont Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: Grossmont Station

4) Prerequisites

a) All Green Line fiber work shall be completed between E10 and Baltimore Junction comm shelter

5) Major Activities

a) Signal and Communications Segment 4 cutover

b) Removal of Interface Case #1

c) E6 Interlocking placed in operation

d) Bidirectional operation between E6 Interlocking and El Cajon Station

e) Interface Case #2 bridges legacy relay logic to the West and to E1291RC ElectroLogIXS.

m. AWW 13

1) Timeframe

a) NTP + 669 calendar days (Month 22)

2) Orange Line Bus Bridge Limits

a) Begin Bridge 1: Spring Street Station

b) End Bridge 1: Grossmont Station

3) Green Line Bus Bridge Limits

a) Begin Bridge 2: 70th Street Station

b) End Bridge 2: Grossmont Station

4) Prerequisites

a) All Green Line fiber work shall be completed between E10 and Baltimore Junction comm shelter

b) All Orange Line fiber work between E6 and Existing E18 / New R30, including Fiber Pullback Plan # 3, shall be completed.

5) Major Activities

a) Signal and Communications Segment 5 cutover

b) Removal of Interface Case #2

c) R30 Interlocking placed in operation

d) Bidirectional operation between R30 Interlocking and El Cajon Station

e) Interface Case #1 bridges legacy relay logic to the West and to E1279RC ElectroLogIXS.

n. AWW 14

1) Timeframe

a) NTP + 760 calendar days (Month 25)

2) Orange Line Bus Bridge Limits

a) Begin Bridge: Massachusetts Station

b) End Bridge: Grossmont Station

3) Prerequisites

a) All Orange Line fiber work between R30 and Existing E12 / New R26, including Fiber Pullback Plan # 2, shall be completed.

4) Major Activities

a) Signal and Communications Segment 6 cutover

b) Removal of Interface Case #1

c) R26 Interlocking placed in operation

d) Bidirectional operation between R26 Interlocking and El Cajon Station

e) Interface Case #2 bridges legacy relay logic to the West and to E1050RC ElectroLogIXS.

o. AWW 15

1) Timeframe

a) NTP + 852 calendar days (Month 28)

2) Orange Line Bus Bridge Limits

a) Begin Bridge: 62nd Street Station

b) End Bridge: Grossmont Station

3) Prerequisites

a) All Orange Line fiber work between R22 and R26, including Fiber Pullback Plan # 1, shall be completed.

4) Major Activities

a) Signal and Communications Segment 7 cutover

b) Removal of Interface Case #2

c) R22 Interlocking placed in operation

d) Bidirectional operation between R22 Interlocking and El Cajon Station

e) Interface Case #1 bridges legacy relay logic to the West and to E945RC ElectroLogIXS.

f) Curved worn rail replacement at Spring Street Station (Curve 4)

p. AWW 16

1) Timeframe

a) NTP + 943 calendar days (Month 31)

2) Orange Line

a) Begin Bus Bridge: 12th & Imperial Station

b) End Bridge: Spring Street Station

3) Major Activities

a) Signal and Communications Segment 8 cutover

b) Removal of Interface Case #1 and return to MTS

c) Removal of Phase 1 Interface Case #2 and return to MTS

d) Final configuration of R22 Interlocking placed in operation

e) Final configuration of R18 Interlocking placed in operation

f) Bidirectional operation between R311 and El Cajon Station

g) Conversion of existing embedded track to open ballast at 47th Street Station

4. The following weekends will not be available for weekend AWW's: Easter, Memorial Day, July 4th, Labor Day, Thanksgiving, Christmas, and New Year's. The Contractor shall also take into consideration that Contractor AWW requests during other events including, but not limited to, ComicCon, Rock N Roll Marathon, Padre Games, and other major events that impact MTS' rail operations may not be granted. The Contractor is advised to check the City of San Diego and San Diego Convention Center websites along with MTS' website for downtown special events that may impact their ability to get an approved AWW or street closure.

a. These weekends are also not available for single tracking.

b. AWWs proposed during Padres home games and ComicCon will not be approved.

c. Work after non-revenue service is acceptable during these weekends, but Contractor shall note that extended service is provided on New Year's Eve and Petco park events when the Padres are out of town.

5. The following weekends are not available for weekend AWW's due to reduced availability of bus operators (shift pick):

a. 2026

1) May 16-17

2) May 23-24

3) August 15-16

4) August 22-23

b. 2027

1) January 2-3

2) January 9-10

3) May 15-16

4) May 22-23

5) August 14-15

6) August 21-22

c. Contractor shall anticipate similar dates to 2027 in years 2028 and 2029

G. During construction, the Contractor shall provide and install suitable safeguards to protect the underground facilities, including but not limited to, utilities, structures, and system such as storm drains. Safeguards shall conform to Article 3.4, Preservation of Property, of these Technical Specifications. The location, type, size, use, and condition of all underground facilities is unknown. It shall be the Contractor's responsibility to identify and protect all these facilities prior to the work or portion thereof.

H. Application of Best Management Practices (BMPs) shall be required throughout the duration of this project. Attention is directed to Standard Specifications and Special Provisions for Water Pollution and Erosion Control.

1.04 MTS OWNER FURNISHED WAREHOUSE AND LAYDOWN YARD

A. All material shall be stored in accordance with Article 3.11, Material, of the General Conditions.

B. There is one laydown yard area near the project limits that is suitable for the Contractor's use during the project: MTS owned property at 4506 Federal Blvd, San Diego, CA 92102. The Contractor shall be responsible for yard security, furnish and install protective fencing, and shall comply with local noise ordinance requirements. The Contractor shall also note that this area may have MTS Special Trackwork and miscellaneous materials stored.

1. The laydown yard area will be available for the Contractor's use at Notice to Proceed. The Contractor shall assume coordination with MTS will be required to divide the space to also support storage of MTS materials.

2. The laydown yard area shall be returned to MTS no later than the Project's Substantial Completion date.

C. MTS will lease the Contractor with approximately 19,915 square feet of warehouse space at 4506 Federal Blvd, San Diego, CA 92102, for the duration of the Project, for a total of $1, for the following minimum purposes:

1. Storage of Contractor furnished material and equipment for the project.

2. Receiving and storage of all Segments of Owner Furnished Signal Instrument Enclosures simultaneously.

3. Receiving and storage of all other Owner Furnished Materials.

D. The warehouse shall be furnished to the Contractor in its current state, "as-is". The Contractor shall be responsible to provide all tenant improvements, necessary modifications, utilities, insurance, and security.

E. The Contractor shall occupy the space within 30 days after Notice to Proceed.

1.05 CONTRACT COMPLETION AND SUBSTANTIAL COMPLETION

A. Contract duration shall be defined as described in Article 3.33, Time for Completion and Liquidated Damages, of the General Conditions.

B. Substantial Completion of all work shall be achieved by NTP +973 calendar days. (Substantial Completion is AWW 16 + 30 days) The Work covered by Substantial Completion is inclusive of all Work described in the 16 Absolute Work Windows (AWWs) outlined herein.

C. Liquidated damages shall be the amount shown in Article 5.1, Liquidated Damages, of the Special Conditions.

D. Contract close-out shall be completed within six (6) months of Substantial Completion.

E. The Contractor shall complete all Work required by the Contract Documents within **1157 calendar days** from the commencement date stated in the Notice to Proceed. This period shall include the time required for completion of the work and all closeout activities.

1.06 SUBMITTAL PROCEDURES

A. All submittals shall conform to the requirements specified herein.

B. Construction Management Software Platform

1. Contractor shall furnish Construction Management Software Platform, Procore, or MTS approved equal, for management of submittals and project document storage over the life cycle of the Project.

    a. Contractor shall furnish 25 licenses for MTS or MTS representatives use, in addition to the licenses necessary for the Contractor’s staff.

2. Submittals shall be provided as PDF electronic files and transmitted through the Construction Management Software Platform. MTS will return a response through the same Platform.

3. At the end of the project and prior to final closeout, the Contractor shall provide a complete electronic backup of all project documents contained within the cloud-based Construction Management Software Platform and submit to MTS.

C. MTS reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

D. Any Work performed without an approved submittal will be done at the Contractor’s own risk.

E. Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on the first full working day after MTS receives the submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 21 calendar days for review of each original submittal.
2. Resubmittal Review: Allow 7 calendar days for review of each resubmittal.
3. Submittals received after 2 PM Pacific Standard Time will not be processed until the following working day which will be recorded as the receipt of submittal date.

F. Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using transmittal form. MTS will return, without review, any submittals received from sources other than the Contractor.

1. Transmittal Form: Provide the following information on the transmittal form:
   a. Project name
   b. Date
   c. Source (From:)
   d. Names of Subcontractor, manufacturer, and supplier
   e. Name of Submittal
   f. Submittal purpose and description
   g. Specification Section number and title, reference to required submittal part
   h. Drawing number and detail references, as appropriate. Absence of drawing number will be cause for rejection of submittal.
   i. Transmittal number, unique and numbered consecutively
   j. Submittal and transmittal distribution record
   k. Remarks
   l. Signature of Contractor, confirming that the submittal has been reviewed internally for completeness prior to submission to MTS.
2. On an attached separate sheet, prepared on the Contractor's letterhead, record as necessary relevant information, requests for data, revisions other than those requested by MTS on previous submittals, and deviations from requirements in the Contract Documents.
3. Provide an action sheet with identified areas to permanently record the Contractor's submittal identification, the preparer, and actions taken by MTS.
   a. The identification information shall include:
      1) Project name
      2) Submittal Number
      3) Specification Section title and number
      4) Name of submittal preparer
      5) Date submitted
   b. Upon receipt, MTS will note the following information:
      1) Date received

2) Name of the MTS reviewer

3) Date reviewed and returned

4) Action Designation

a) Submittals reviewed by MTS and returned to the Contractor will be marked with one of the following designations:

i) Approved

ii) Approved as Noted

iii) Revise and Resubmit

iv) Rejected

v) No Action Taken

4. Assemble the complete submittal package into a single file. Name the file with its submittal number or another unique identifier, including revision identifier. The file name shall use a project identifier and the Specification Section number, followed by a decimal point and a sequential number for the item, and another decimal point and zero for the initial submittal (e.g., OLIPC1-344201.001.0). Resubmittals shall increment to represent revision 1, 2, etc. (e.g., OLIPC1-344201.001.1).

5. MTS will review each submittal, make marks to indicate corrections or modifications required, and return it. MTS will complete the action sheet to indicate the action required.

G. Make resubmittals in the same format as the initial submittal.

1. Note the date and content of the previous submittal.

2. Note the date and content of the revision in the label or title block, and clearly indicate the extent of revision on the documents submitted.

3. Resubmit submittals until they are stamped “Approved” or “Approved as Noted” by reviewer.

4. Direct specific attention in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals to revisions other than those requested by MTS on previous submittals.

H. The Contractor is responsible for conformance of all submittals prepared by the Contractor, with all requirements of the Contract Documents.

I. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by MTS’ review of Shop Drawings, Product Data, Samples, or similar submittals unless the Contractor has specifically informed MTS in writing of such deviation at the time of the submittal and given written acceptance to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by MTS’ review thereof.

J. Contractor shall review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions.

K. MTS review is not conducted for the purpose of determining the accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for installation which remain the responsibility of the Contractor.

L. Review of a separate item shall not indicate approval of the assembly of which the item is a part.

M. Approval of submittals with deviations shall not relieve the Contractor from responsibility for additional costs of changes required to accommodate such deviations. Deviations included in submittals without prior approval are excepted from review of submittals, whether noted or not on returned copy.

N. Notations by MTS which increase Contract Cost or Contract Time shall be brought to MTS' attention, in writing as a Request for Change, before proceeding with Work.

O. When professional certification of performance criteria of materials, systems, or equipment is required by the Contract Documents, MTS shall be entitled to rely on the accuracy and completeness of such calculations and certifications.

P. Incomplete submittals are not acceptable; they will be considered nonresponsive and will be returned without review.

Q. The Contractor shall not proceed with procurement, manufacture or fabrication of items submitted for review, until such submittals have been designated by MTS as "Approved" or "Approved as Noted." Until submittal items receive such designation by MTS, any costs associated with procurement for these items shall be at the Contractor's risk.

1.07 PROJECT SCHEDULE

A. The Contractor shall submit to the Engineer an initial project schedule conforming to Article 3.8, Schedule, of the General Conditions and the additional requirement defined herein.

B. The Engineer may adjust contract working days for ordered changes that affect the scheduled completion date, in conformance with the provisions in Article 3.35 Changes and Extra Work Payment, of the General Conditions.

C. The Contractor shall submit to the Engineer in an electronic format critical path method (CPM) progress schedules in conformance with these General Requirements.

1. Definitions

   a. Activity – A task, event or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration and one or more logic ties.

   b. Baseline schedule – The initial schedule representing the Contractor's work plan on the first working day of the project.

   c. Contract Completion Date – The current extended date for completion of the Contract shown on the weekly statement of working days furnished by the Engineer and in conformance with Article 1.05 herein.

d. Critical Path – The longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path will extend the scheduled completion date.

e. Critical Path Method – A network based planning technique using activity durations and the relationships between activities to mathematically calculate a schedule for the entire project.

f. Data Date – The day after the date through which a schedule if current. Everything occurring earlier than the data date is “as-built” and everything on or after the data date is “planned”.

g. Early Completion Time – The difference in time between an early scheduled completion date and the Contract completion date. This can be an exclusive resource for the Contractor.

h. Float – The difference between the earliest and latest allowable start or finish times for an activity.

i. Milestone – Event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.

j. Narrative Report – A document submitted with each schedule that discusses topic related to project progress and scheduling.

k. Near Critical Path – A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.

l. Schedule Completion Date – The planned project finish date shown on the current accepted schedule.

m. MTS Owned Float Activity – The activity documenting time saved on the critical path by actions of MTS. It is the last activity prior to the scheduled completion date. This is for the exclusive use of MTS. The Engineer may use MTS-Owner float to mitigate past, present or future MTS delays by offsetting potential time extensions for contract change orders.

n. Time Impact Analysis – A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.

o. Total Float – The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

p. Update Schedule – A current schedule developed from the baseline of subsequent schedule through regular monthly review to incorporate as-built progress and any planned changes.

2. General Requirements

a. The Contractor shall submit to the Engineer baseline, monthly update and final update schedules, each consistent in all respects with the time and order of work requirements of the Contract. The project work shall be executed in the sequence indicated on the current accepted schedule.

b. Schedules shall show the order in which the Contractor proposes to carry out the work with logical links between time-scaled work activities, and calculations made using the critical path method to determine the controlling operation or operations. The Contractor is responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the Work.

c. The Contractor shall produce schedules using Primavera 6.0. The Contractor shall furnish network diagrams, narrative reports, tabular reports, and schedule data as parts of each schedule submittal.

d. The schedule shall include the following project detail:

1) Project characteristics or interfaces including those outside entities that could effect time of completion.

a) Required delivery of Owner Furnished Materials

b) CPUC Safety Certification Approval for Operation

2) Project start date, scheduled completion date, and other milestones

a) Mobilization

b) Construction Segments (begin and end dates)

c) Absolute Work Windows

d) Substantial Completion

3) Work performed by the Contractor, subcontractors and suppliers broken down by Segment.

4) Submittal development, delivery, review, and approval, include those from the Contractor, subcontractors and suppliers.

5) Procurement, delivery, installation and testing of materials, plants, and equipment.

6) Testing and settlement periods

7) Utility notification and relocation

8) Erection and removal of falsework and shorting.

9) Acquisition of permits

10) MTS Owned float as the predecessor activity to the scheduled completion date.

11) Demobilization, punchlist and close out activities

e. The number of activities shall be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.

f. Schedule activities shall include the following:

1) A clear and legible description.

2) Start and finish dates

3) A defined duration

4) One minimum predecessor activity and one successor activity, except for project start and finish milestones.

5) Required constraints

6) Codes for responsibility, stage, work shifts, location and contract pay item numbers.

g. The Engineer may adjust contract working days for ordered changes that affect the schedule completion date. The Contractor shall prepare a time impact analysis to determine the effect of the change and shall include the impacts acceptable to the Engineer in the next updated schedule. Changes that do not affect the controlling operation on the critical path will not be considered as the basis for a time adjustment. Changes that do affect the controlling operation on the critical path will be considered by the Engineer in decreasing time or granting an extension of time for completion of the Contract. Time extensions will only be granted if the total float is absorbed and the schedule completion date is delayed one or more working days because of the ordered change.

h. The Engineer’s review and acceptance of schedules shall not waive any contract requirements and shall not relieve the Contractor of any obligation or responsibility for submitting complete and accurate information. Schedules that are rejected shall be corrected by the Contractor and resubmitted to the Engineer within 5 working days of notification by the Engineer. Errors or omissions in schedules shall not relieve the Contractor from finishing all work within the time limit specified for completion of the Contract.

3. Schedule submittal

a. PDF of time scaled network diagrams

b. PDF of a supporting narrative report

c. PDF of CPM software generated tabular report

d. All PDF in 11x17 landscape format

e. Include a title block and timeline on each page

f. Show a continuous flow of information from left to right

4. Narrative Report Contents

a. Work completed during the period

b. Identification of unusual conditions or restrictions regarding labor, equipment, or material;

c. Identification of current critical path, changes to critical path and completion date since the last schedule submittal

d. Description of problem/risk areas

e. Current and anticipated delays

1) Cause of delay

2) Impact of delay on other activities, milestones, and completion dates

3) Corrective action and schedule adjustments to correct the delay

f. Pending Items and status

1) Permits

2) Change orders

3) Time adjustments

4) Noncompliance notices

g. Reasons for an early or late scheduled completion date in comparison to the Contract completion date.

D. Tabular reports shall include the following:

1. Data date

2. Activity number and description

3. Predecessor and successor activity numbers and descriptions
4. Activity codes
5. Scheduled, or actual and remaining durations (work days) for each activity
6. Earliest start (calendar) date
7. Earliest finish (calendar) date
8. Actual start (calendar) date
9. Actual finish (calendar) date
10. Latest start (calendar) date
11. Latest finish (calendar) date
12. Free float (work days)
13. Total float (work days)
14. Percentage of activity complete and remaining duration for incomplete activities.
15. Lags
16. Required constraints

E. Schedule submittals will only be complete when all documents and data have been provided as described herein.

F. Schedule Submittal Frequency

1. Pre-Construction conference shall be held with Contractor's scheduler 10 days after NTP. A draft schedule will be presented at this time.
2. Baseline schedule – submit weekly after the Pre-Construction conference until the Engineer approves the baseline schedule.
3. Updated schedule – submit each month beginning one month after the baseline schedule is accepted.
4. Final Update schedule – submit a final asbuilt schedule within 30 days of the completion of the contract with actual start and finish dates.
5. Time Impact Analysis – submit within 15 working days of receiving written request from the Engineer.

G. Time Impact Analysis

1. The Contractor shall submit a written Time Impact Analysis (TIA) to the Engineer with each request for adjustment of contract time, or when the Contractor or Engineer consider that an approved or anticipated change may impact the critical path or contract progress.

2. The TIA shall illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate. The analysis shall use the accepted schedule that has a data date closest to and prior to the event. If the Engineer determines that the accepted schedule used does not appropriately represent the conditions prior to the event, the accepted schedule shall be updated to the day before the event being analyzed. The TIA shall include an impact schedule developed from incorporating the event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities. If the impact schedule show that incorporating the event modifies the critical path and scheduled completion date of the accepted schedule, the difference between schedule completion dates of the two schedules shall be equal to the adjustment of contract time.

1.08 WORK PLANS

A. Work plans shall be submitted for MTS approval prior to beginning the construction related Work. Submit Work Plans in accordance with Article 1.06, Submittal Procedures of these Technical Specifications. Non-AWW work plan submittals shall be sequenced and tied to the Contractor's Progress Schedule, allowing for MTS review time of 21 calendar days. MTS will request a working meeting to discuss work plans submitted if required.Work Plans shall include proposed phasing and laydown area requirements for equipment, material, company vehicles, and personnel vehicles. The work plan shall address all work activity including overhead contact wire, special trackwork, civil improvements, railroad signal and communication improvements, and maintaining rail operations.

B. The work plan shall include, but is not limited to, the following:

3. Location and Segment identification
4. A detailed schedule.
5. Written description and Plans showing the work to be performed.
6. Limits of the work to be performed.
7. Work, testing, and commissioning activities to be performed hour by hour.
8. Planned start and finish times.
9. MTS Operations and Maintenance of Way (MOW) specific requests (OCS power down, single track operation, planned slow orders)
10. MTS Flagging support requested.
11. Staging areas.
12. The number of personnel and each person's duties.
13. Proof of roadway work safety training for each person assigned to work.
14. Name and contact information for those responsible for the work being performed.
15. Name and contact information for the person responsible for the Signal Testing and Documentation.
16. Plans to protect-in-place existing infrastructure not affected by the Contract Documents.

17. Third-party suppliers that may be entering the right-of-way.
18. Approval of all related submittals.
19. Alternate methods of crossing warning whenever an existing automatic crossing warning device is deactivated, altered, or modified to accommodate construction work.
20. Traffic control plans approved by the City of San Diego.
21. List of equipment to be used and standby equipment.
22. Excavation plans for work including foundations, retaining wall construction and conduit trenching detailing depth of excavation.
23. Contingency plans to ensure restoration of normal trolley operations at the end of the shift.

1.09 PERMITS

A. Contractor shall obtain traffic control permit(s) for project traffic control during construction including traffic detours. Contractor shall prepare any traffic control plans required by the City of San Diego based on Contractor's construction scheduling and phasing in accordance with Article 3.11, Temporary Traffic Control, of these Technical Specifications.

1.10 QUALITY CONTROL PLAN (QCP)

A. Purpose

1. The Contractor is responsible for Quality Control (QC) throughout the construction of the project. The QC system shall consist of plans, procedures, and organization necessary to produce a product that complies with the Contract requirements. The system shall cover construction and procurement operations, both onsite and offsite, and shall be keyed to the proposed construction sequence.

B. Content of the QCP

1. The QCP shall include the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers and purchasing agents.

   a. The purpose of the QCP as well as the Contractor's company policy statement regarding QC.

   b. A description of the QC organization including a chart showing lines of authority and acknowledgement that the QC staff shall implement the QCP for all aspects of the Work specified. The Quality Manager on site staffing level shall be proposed as part of the plan for MTS review and approval.

   c. The names, qualifications, duties, responsibilities and authorities of each person assigned a QC function.

d. Procurement control procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requirement test, feature of work to be tested, test frequency and person responsible for each test.

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests, including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. Contractor's plan identifying QC activities and testing requirements for all definable features of work. A definable feature of work is a task that is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there is frequently more than one definable feature under a particular section.

2. Acceptance of the QCP

a. Acceptance of the QCP by MTS is required prior to the start of construction. Final acceptance is conditional and will be predicated on satisfactory performance during construction. MTS reserves the right to require the Contractor to make changes to the QCP, including the removal or addition of personnel, or increasing the time for the Quality Manager to be on site, as necessary, to obtain the quality specified.

3. Notification of Changes to the QCP

a. After acceptance of the QCP, the Contractor shall notify MTS, in writing, prior to any proposed change. Proposed changes shall be approved by MTS.

4. Inspection and QC Testing

a. The Contractor shall perform inspection and QC testing to verify that control measures are adequate to provide a product which conforms to contract requirements. A list of all tests to be performed shall be furnished to the Engineer prior to any work beginning. The list shall identify the test name, specification paragraph containing the test requirements, and the personnel responsible for each type of test. The Contractor shall notify the Engineer at least 24 hours in advance of testing.

b. Testing includes but is not limited to: qualification tests, factory tests, installation verification tests, construction material tests, demonstration tests, and pre-operation tests. Contractor's QC testing shall be performed and documented by qualified persons other than those responsible for accomplishing the work being inspected.

c. Procedures shall be developed and implemented by the Contactor covering performance inspection and test activities, including personnel qualification, measuring equipment control, and calibration and status control. Deficiencies during testing and inspection shall be noted on the Contractor's Daily Report and shall be corrected prior to acceptance. Logs of testing and inspection shall be kept by the Contractor and are subject to review by MTS.

d. All tests taken, both passing and failing tests, shall be recorded on the Contractor's Daily Report. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. Items of nonconformance shall be identified and work shall not proceed for that feature of work until corrective action have been approved by MTS.

e. MTS may perform quality assurance (QA) testing with the aid of an independent testing laboratory to verify compliance. QA testing results by MTS, or their representative, shall govern and may require retesting for that feature of work at the Contractor's expense.

f. In-process inspection shall be utilized, in addition to receiving inspection, first article inspection, installation inspection, and final inspection, to evaluate project attributes (such as performance, reliability, etc) and to verify that the project is built in accordance with the project requirements.

g. Source inspection shall be utilized for Contractor procured material.

h. Final acceptance of the project provides for a review of all pertinent records and documents impacting quality, and is performed after all required inspections and testing are completed with acceptable results.

i. Records shall be maintained in the Contractor's project files for the various inspections and tests. Records provide evidence that the product has passed inspection and/or test with defined acceptance criteria. Records shall be submitted to MTS at the completion of the project.

1.11 SAFETY PLAN

A. The Contractor shall comply with all Occupational Safety and Health Administration (OSHA) and Cal/OSHA requirements that apply to the Contactor's operations/applicable work activities for the Project. The Safety Plan shall address at a minimum the following work components:

1. Administrative Requirements

a. Documents on site

b. On Site Hazard Warnings and Postings

c. Recordkeeping

d. Reports and Notifications

e. Certifications

2. Aerial Devices and Elevating Work Platform

3. Demolition

4. Injury and Illness Prevention Program

5. Electrical

6. Emergency Medical Services

7. Excavation, Trenches and Earthwork

8. Fall Protection

9. Fire Protection and Prevention

10. First Aid

11. Hazard Communication

12. Heat Illness Prevention

13. Heavy Construction Equipment

14. Housekeeping/Site Cleaning

15. Injury and Illness Prevention Program

16. Laser Equipment

17. Lighting

18. Lock-out/Tag-out Procedures

19. Noise

20. Personal Protective Equipment

21. Qualified Personnel

22. Traffic Control

23. Toilets/Washing Facilities/Sanitation

24. Welding, Cutting or Other Hot Work

25. Work Over or Near Water

26. Workplace Violence Prevention

B. Contractor's Safety Program

1. The Contractor's safety program shall define the Contractor's safety practices and procedures. The Safety Manager on site staffing level shall be proposed for MTS review and approval.

2. The Contractor shall conduct weekly safety meetings (15 minutes minimum)

   a. Discuss observed accident trends and causes.

   b. Plan safety into the work activities.

   c. Identify, discuss and take action to correct workers' safety concerns.

   d. Review emergency procedures with employees.

3. Contains a disciplinary program

4. Contains a policy that prohibits rough or boisterous play and activity, gambling, the use of alcohol or drugs, and the possession of weapons on the construction site.

5. Monitors roadway worker safety, including employee adherence to MTS requirements and training that is current (not expired).

C. Emergency procedures

1. Procedures shall be developed for the following categories:

   a. Fire

   b. Employee injury

   c. Property damage and damage to various utilities

   d. Earthquake

   e. Public demonstrations

   f. Bomb threats

   g. Hazardous materials encountered

h. Toxic spills

i. Explosions

j. Vehicular accidents

2. Procedures shall include but are not limited to:

a. Identification of the person responsible for handling an emergency.

b. Establishment of teams for handling each type of emergency.

c. Identification of the person responsible for making emergency calls.

d. Posting a list of emergency numbers, along with information to be transmitted.

3. Update emergency procedures as necessary

4. Following an emergency, the Contractor shall:

a. Stop work

b. Evacuate the area as necessary

c. Notify the Engineer as expediently as possible

d. Secure the area as expediently as possible

e. Provide only those authorized representatives of MTS and specific governmental agencies with an account of the nature of the emergency. Questions from media personnel shall be referred to the Engineer.

PART 2 – PRODUCTS

2.01 OWNER FURNISHED SPECIAL TRACKWORK

A. The following special trackwork is owner furnished (manufactured by Progress Rail). Trackwork will be in loose packages. Rail ends will be left blank (without drilling) for field fitting and field welding. Any additional rail and rail components required to complete the Work as shown on the Contract Documents shall be provided by the Contractor.

1. #11 Left-Hand 115 RE Crossover – Quantity 2
2. #11 Right-Hand 115 RE Crossover – Quantity 2
3. Baltimore Junction Single Track Diamond 115 RE (One track tangent, one track curved) Tangential Crossing Angle 13° +/- Modified #11 Left-Hand 115 RE Switch (BNSF Std. Drawing #2055) (MTS Switch Identification E19A) – Quantity 1

4. #10 RH 115 RE Solid Heel-Block Track Switch Conversion Package (maintenance length stock rails (39'+), switch points (19' 6"), bolted heel block assemblies, pre-plated ties #0 through #12 tie/plate, chairs & anchors, #1 with basket, #2 & #3 insulated gauge rods & transit clips) – Quantity 3
5. #10 LH 115 RE Solid Heel-Block Track Switch Conversion Package (maintenance length stock rails (39'+), switch points (19' 6"), bolted heel block assemblies, pre-plated ties #0 through #12 tie/plate, chairs & anchors, #1 with basket, #2 & #3 insulated gauge rods & transit clips) – Quantity 1
6. #10 LH 115 RE Track Switch Upgrade Package (new ties and plates #0 through #12, tie/plate, chairs & anchors, #1 w/basket, #2 & #3 insulated gauge rod and transit clips) – Quantity 2
7. #10 RH 115 RE Track Switch Upgrade Package (new ties and plates #0 through #12, tie/plate, chairs & anchors, #1 w/basket, #2 & #3 insulated gauge rod and transit clips and switch points (19' 6") for bolted heel block) – Quantity 1
8. #20 LH 115 RE Track Switch Upgrade Package (new ties and plates #0 through #13, #1 & #5 w/basket and #2 through #4 insulated gauge rod and transit clips) – Quantity 2
9. #20 RH 115 RE Track Switch Upgrade Package (new ties and plates #0 through #13, #1 & #5 w/basket and #2 through #4 insulated gauge rod and transit clips) – Quantity 4
10. 9' #1 Treated Hardwood Ties – Quantity 350
11. 19' – 6" 115 RE Shop Bonded Insulated Joint Plugs – Quantity 48
12. 39' – 0" 115 RE Shop Bonded Insulated Joint Plugs – Quantity 17

B. Any Owner Furnished Special Track Material that is not utilized by the Contractor for the project shall be returned to MTS at their designated location.

C. Special Track Joint Inspection/Required Testing Upon Receipt

1. The Contractor shall coordinate with MTS to arrange a joint visual inspection at the time of material handoff. At time of handoff, both MTS and the Contractor shall complete a visual inspection and take complete photographs of the Track Material. If damage is found, it shall be documented and photographed by the Contractor and submitted to MTS within one calendar day.
    a. The inspection of the Owner Furnished Special Trackwork will occur at 4506 Federal Blvd, San Diego, CA 92102) and Baltimore Junction Laydown Yard (5105 Baltimore Dr, La Mesa, CA 91942).
    b. The joint inspection of the special trackwork shall be performed on the material in the condition as shipped from the track manufacturer. MTS will not lay out the material. Contractor shall provide any necessary equipment to complete the inspection to their satisfaction as part of the Owner Furnished Track Material Handoff bid item.

2. Even if the joint inspection takes place for all of the material at one time, a separate Track Material Receipt Acknowledgement Form shall be submitted for each Track location of Work.

3. The Contractor shall complete and submit a Track Material Receipt Acknowledgement Form to take responsibility for the material until project closeout or MTS acceptance.

   a. The Track Material Receipt Acknowledgement Form shall include:

      1) Segment/Track Location

      2) Date/Time of Joint Inspection

      3) Names of joint inspectors (Contractor/MTS)

      4) Itemized List of all Track Material Inspected

      5) Documentation, including photographs, of any/all exceptions and a proposal of how each open item can be remedied by the Contractor. If there are no exceptions taken, this shall be indicated on the form, stating “No exceptions taken”.

      6) Signature of Contractor’s Inspector & Contractor’s Superintendent of Track.

   b. The Track Material Receipt Acknowledgement Form shall be submitted to MTS no later than 7 calendar days after the joint inspection is completed.

D. Each insulated joint shall be tested with an insulated joint tester, either S&C Distribution Company Model 344 or an equivalent tester approved by the Engineer. Record test results for each insulated on the respective Track Material Receipt Acknowledgement Form.

2.02 OWNER FURNISHED 115 RE HEAD HARDENED STEEL RAIL

A. The following track rail material is owner furnished (Manufactured by L.B. Foster Company). Any additional track rail and related components required to complete the Work as shown on the Contract Documents shall be provided by the Contractor.

1. Curve worn rail replacement for curves 1 through 4 is allocated 7680’ of 115 RE head hardened rail in 320’ lengths (24 each). Rail stockpile is located between J and L streets in Cula Vista, CA on the MTS Blue Line.

   a. Rail cut and usage plan is required with each rail request from MTS.

   b. Contractor is responsible for all additional material.

2. Curve worn rail replacement for curve 5 is allocated 1280’ of 115 RE head hardened rail in 320’ lengths (4 each). Rail stockpile is located between J and L streets in Chula Vista, CA on the SDMTS Blue Line.

   a. Rail cut and usage plan is required with each rail request from MTS.

   b. Contractor is responsible for all additional material.

3. Station track replacements shall be provided with 115 RE head hardened rail to

complete La Mesa Boulevard Station, El Cajon Station, and 47th Street Station. Rail lengths are available in 320’ lengths and 80’ lengths. Rail shall be requested through MTS for each station track replacement. Rail stockpile of 320’ lengths is located between J and L streets in Chula Vista CA, on the SDMTS Blue Line. Rail stockpile of 80’ lengths is located at Sigsbee Street crossing in San Diego, CA, on the SDMTS Blue Line.

a. Rail cut and usage plan is required with each rail request from MTS.

b. Contractor is responsible for all additional material.

4. Grade Crossing replacements shall be provided with 115 RE head hardened rail to complete Broadway, Lemon Ave, La Mesa Blvd, Allison Ave, and University Ave. Rail lengths are available in 320’ lengths and 80’ lengths. Rail shall be requested through MTS for each Grade Crossing replacement. Rail stockpile of 320’ lengths is located between J and L streets in Chula Vista CA, on the SDMTS Blue Line. Rail stockpile of 80’ lengths is located at Sigsbee Street crossing in San Diego, CA, on the SDMTS Blue Line.

a. Rail cut and usage plan is required with each rail request from MTS.

b. Contractor is responsible for all additional material.

B. Rail Movement

1. Rail movement by train shall be completed outside of MTS revenue service and shall be coordinated with MTS. The Contractor shall complete rail movement without requesting additional Absolute Work Windows (AWWs).

2. Contractor shall provide all labor, equipment and material needed to travel the required owner furnished 320’ rail for the curve rail replacement from between J and L Streets in Chula Vista on the SDMTS Blue Line. Contractor shall provide a written rail travel plan for review and approval. Plan shall detail the on-track equipment to be used to carry the rail as well as powered equipment to transport rail train. Plan shall provide an hour-by-hour schedule that covers all intended shifts to complete the movement of rail from the stockpile location to the various sites along the SDMTS Orange Line where rail will be offloaded. Plan must include any layover points and all needed agency support to complete the task.

3. Contractor shall provide all labor, equipment and material needed to travel the required owner furnished 80’ rail for the Station and Grade Crossing replacements from Sigsbee Street in San Diego on the SDMTS Blue Line. Contractor shall provide a written rail travel and/or roadway haul plan for review and approval. Plan shall detail the on-track equipment and/or trucking to be used to carry the rail as well as powered equipment to transport via rail train. Plan shall provide an hour-by-hour schedule that covers all intended shifts to complete the movement of rail from the stockpile location to the various sites along the SDMTS Orange Line where rail will be offloaded. Plan must include any layover points and all needed agency support to complete the task.

C. 115 RE Head Hardened Steel Rail Joint Inspection/Required Testing Upon Receipt

1. The Contractor shall coordinate with MTS to arrange a joint visual inspection at the time of material handoff. At time of handoff, both MTS and the Contractor shall complete a visual inspection and take complete photographs of the Rail. If damage is found, it shall be documented and photographed by the Contractor and submitted to MTS within one calendar day.

a. The inspection of the Owner Furnished 115 RE Head Hardened Rail will occur at the stockpile locations specified above.

b. The joint inspection of the Rail shall be performed on the material in the condition as shipped from the rail manufacturer. Contractor shall provide any necessary equipment to complete the inspection and transport the rail.

2. Even if the joint inspection takes place for all of the material at one time, a separate Rail Receipt Acknowledgement Form shall be submitted for each time Rail is received by the contractor.

3. The Contractor shall complete and submit a Rail Receipt Acknowledgement Form to take responsibility for the material until project closeout or MTS acceptance.

a. The Rail Receipt Acknowledgement Form shall include:

1) Segment/Track Location

2) Date/Time of Joint Inspection

3) Names of joint inspectors (Contractor/MTS)

4) Itemized List of all Rail Inspected

5) Documentation, including photographs, of any/all exceptions and a proposal of how each open item can be remedied by the Contractor. If there are no exceptions taken, this shall be indicated on the form, stating “No exceptions taken”.

6) Signature of Contractor’s Inspector & Contractor’s Superintendent of Track.

D. The Rail Receipt Acknowledgement Form shall be submitted to MTS no later than 7 calendar days after the joint inspection is completed.

E. Any Owner Furnished 115 RE Head Hardened Steel Rail that is not utilized by the Contractor for the project shall be returned to MTS at their designated location.

2.03 OWNER FURNISHED OVERHEAD CATENARY SYSTEM (OCS) MATERIAL

A. The following OCS material is owner furnished. Any additional OCS components and related components required to complete the Work as shown on the Contract Documents shall be provided by the Contractor.

1. OCS Poles

a. Pole Assembly 203-3, 30ft height, ½ gauge – Quantity 4

b. Pole Assembly 203-2, 30ft height, 3 gauge – Quantity 6

B. OCS Material Joint Inspection Upon Receipt

1. The Contractor shall coordinate with MTS to arrange a joint visual inspection at the time of material handoff. At time of handoff, both MTS and the Contractor shall complete a visual inspection and take complete photographs of the OCS Material.

If damage is found, it shall be documented and photographed by the Contractor and submitted to MTS within one calendar day.

2. Even if the joint inspection takes place for all of the material at one time, a separate OCS Material Receipt Acknowledgement Form shall be submitted for each OCS location of Work.

3. The Contractor shall complete and submit an OCS Material Receipt Acknowledgement Form to take responsibility for the material until project closeout or MTS acceptance.

   a. The OCS Material Receipt Acknowledgement Form shall include:

      1) Segment/OCS Location

      2) Date/Time of Joint Inspection

      3) Names of joint inspectors (Contractor/MTS)

      4) Itemized List of all OCS Material inspected and received

      5) Exceptions noted (if any, shall include documentation, including photographs of any/all exceptions and a proposal of how each open item can be remedied by the Contractor). If there are no exceptions, state on the form “No Exceptions Noted for all Listed Material”.

      6) Signature of Contractor’s Inspector & Contractor’s Superintendent of OCS.

   b. The OCS Material Receipt Acknowledgement Form shall be submitted to MTS no later than 7 calendar days after the joint inspection is completed.

D. Any Owner Furnished OCS Material that is not utilized by the Contractor for the project shall be returned to MTS at their designated location.

2.04 OWNER FURNISHED SIGNAL EQUIPMENT

A. The following signal equipment is owner furnished. Any additional components required to complete the Work as shown on the Contract Documents shall be provided by the Contractor.

1. Pre-wired Instrument Enclosures – Quantity 29 (additional detail in Article 2.05 herein)

2. Temporary Interface Cases – Quantity 2 (additional detail in Article 2.05 herein)

3. M-23A Right Hand Switch Machines, Part Number N451600535– Quantity 10

4. M-23A Left Hand Switch Machines, Part Number N451600536 – Quantity 12

5. Impedance Bonds, Part Number 000-1667-1-0 – Quantity 70

B. Signal Equipment Joint Inspection Upon Receipt (Article 2.04 Part A Items 3-6 herein)

1. The Contractor shall coordinate with MTS to arrange a joint visual inspection at the time of material handoff. At time of handoff, both MTS and the Contractor shall complete a visual inspection and take complete photographs of the Signal

Equipment. If damage is found, it shall be documented and photographed by the Contractor and submitted to MTS within one calendar day.

2. Even if the joint inspection takes place for all of the material at one time, a separate Signal Equipment Receipt Acknowledgement Form shall be submitted for each Signal location of Work.

3. The Contractor shall complete and submit Signal Equipment Material Receipt Acknowledgement Form to take responsibility for the material until project closeout or MTS acceptance.

   a. The Signal Equipment Material Receipt Acknowledgement Form shall include:

      1) Segment/Signal Location

      2) Date/Time of Joint Inspection

      3) Names of joint inspectors (Contractor/MTS)

      4) Itemized List of all Signal Equipment inspected and received

      5) Exceptions noted (if any, shall include documentation, including photographs of any/all exceptions and a proposal of how each open item can be remedied by the Contractor). If there are no exceptions, state on the form “No Exceptions Noted for all Listed Material”.

      6) Signature of Contractor’s Inspector & Contractor’s Signal Engineer.

C. The Signal Equipment Material Receipt Acknowledgement Form shall be submitted to MTS no later than 7 calendar days after the joint inspection is completed.

2.05 OWNER FURNISHED SIGNAL INSTRUMENT ENCLOSURES AND APPLICATION SOFTWARE

A. The Contractor shall provide personnel to witness and accept the following Factory Acceptance Testing (FAT) in Williamsburg, VA. The objective of the testing requirements is to provide a clear transfer of responsibility between the Contractor and MTS (or other MTS Contractors) for both the owner furnished enclosures and the owner furnished application software.

1. Enclosure Manufacturer testing will be performed in Williamsburg, VA, by enclosure manufacturer personnel and witnessed by Contractor’s personnel. This is the prerequisite testing to determine that the enclosures are ready for the performance testing phase and to provide the Contractor the opportunity to identify any corrections to the enclosures for the Enclosure Manufacturer to address prior to shipment.

   a. Although MTS may be present to witness this testing, the Contractor shall lead the effort to inspect the Enclosure Manufacturer’s workmanship, confirm that the equipment is installed and wired according to the Plans, confirm that all hardware is functional, confirm that no equipment/accessories are missing, and request corrections to be made by the Enclosure Manufacturer while the enclosures remain located at their

facility and prior to shipment.

b. After the Contractor approves each Segment's enclosures for shipment to the Contractor's warehouse, should either MTS or the Contractor identify: omissions that require corrections to be made to the enclosure related work, or discover missing equipment/accessories that were anticipated for the Enclosure Manufacturer to provide, the Contractor shall be required to remedy and complete the work to make these corrections or furnish and install missing equipment/accessories required by these Plans and Specifications at no additional cost to MTS.

2. Performance FAT testing will be performed in Williamsburg, VA, by the Engineer to allow the Contractor to evaluate the owner furnished application software and approve for release and transmittal of the demonstrated software to the Contractor's Signal Engineer to complete their independent end-to-end pretest verification.

a. The transmitted application software and any application software modifications necessary to provide a working system will remain the responsibility of the Engineer throughout the project. The Engineer will be available on site to provide software support during each AWW signal cutover. It is MTS' desire to avoid software changes during AWW through the Contractor's diligent preparation and performance of independent end-to-end pretesting prior to each AWW. This requirement will provide safety critical software that has been evaluated by the parties jointly at FAT and separately by the Engineer during development and the Contractor's Signal Engineer during end-to-end pretest.

b. Should the signal AWW cutover testing activities be delayed by an application software adjustment that was not identified during the independent end-to-end pretest activities of the Contractor's Signal Engineer, the Contractor's independent pretesting activities to evaluate the software will be assumed insufficient by MTS and the Contractor shall be the sole party responsible for this delay.

B. The following signal instrument enclosures are owner furnished. Each Segment's signal instrument enclosures shall be delivered to the Contractor's warehouse no later than (and possibly prior to) the following dates:

1. Segment 1 – 9/24/26

a. E1653RCA – 2 door case

b. E1616RC – 6'x10' signal enclosure

c. E1567RC – 6'x8' signal enclosure

d. E1571RC – 20.5" x 51.5" transformer case

e. E1527RC – 6'x12'signal enclosure

f. Temporary Interface Case #1 – 2 door case

2. Segment 2 – 12/3/26

a. E1471RC – 6'x10' signal enclosure

b. E1455RC – 6’x8’ signal enclosure

c. E1424RC – 6’x12’ signal enclosure

d. Temporary Interface Case #2 – 2 door case

3. Segment 3 – 3/9/27

a. E1394RC – 6’x8’ signal enclosure

b. E1370RC – 6’x12’ signal enclosure

c. E1316RC – 6’x12’ signal enclosure

4. Segments 4 & 5 (Contractor shall note these Segments are combined as a single FAT for Baltimore Junction, but these same Segments will be separated into two (2) AWWs for signal cutover of Baltimore Junction due to the amount of testing required) – 6/15/27

a. E1297RC – 6’x12’ signal enclosure

b. E1291RC – 10’x14’ signal enclosure

c. E1279RC – 6’x12’ signal enclosure

5. Segment 6 – 9/17/27

a. R1256RC – 6’x10’ signal enclosure

b. R1241RC – 6’x10’ signal enclosure

c. R1230RC – 6’x10’ signal enclosure

d. R1224RC – 6’x10’ signal enclosure

e. R1199RC – 6’x8’ signal enclosure

f. R1174RC – 6’x8’ signal enclosure

g. R1114RC – 6’x8' signal enclosure

h. R1075RC – 6’x12' signal enclosure

i. R1050RC – 6x12' signal enclosure

6. Segment 7 - 12/23/27

a. R1025RC – 6’x10’ signal enclosure

b. R1000RC – 6’x10’ signal enclosure

c. R967RC – 6’x10' signal enclosure

d. R945RC – 6’x12' signal enclosure

7. Segment 8 – 2/18/28

a. R917RC – 6’x8’ signal enclosure

b. R886RC – 6’x10' signal enclosure

C. Joint inspection procedures required for handoff are defined in Section 34 42 13.18 Instrument Enclosures.

D. Factory Acceptance Test requirements required for handoff of the application software are defined in Section 34 42 13.28 Block Signal Highway Grade Crossing Warning Systems Testing.

PART 3 – EXECUTION

3.01 MOBILIZATION

A. Mobilization shall, as defined in Article 3.34, Payment, of the General Conditions and conform to Section 10104 of the Public Contract Code.

3.02 SITE CONDITIONS AND ACCESS

A. A baseline conditions assessment shall be made in accordance with Article 5.8, Documentation of Existing Conditions, of the Special Conditions.

B. Prior to beginning Construction in any Segment, Contractor shall arrange a meeting on-site with the Engineer a minimum of one calendar week in advance of the start of construction within that Segment and examine the job-site areas and conditions under which work will be performed. The Contractor shall notify the Engineer in writing, within 48 hours following the on-site meeting, of all discrepancies between the existing site conditions and those shown on the plans. Contractor's failure to provide written notification to the Engineer will indicate that no discrepancies exist.

C. The project site is accessible through public right of way. Where access is limited through public right of way, the Contractor shall make all necessary arrangements, agreements and provide compensation to private property owners if necessary to access the area.

D. Contractor is to maintain access to adjacent properties at all times. Disruption to their business activities shall be kept to a minimum. The Contractor shall communicate in advance with each property owner/tenant affected by its operations prior to the start of work. In addition, the Contractor shall maintain a proactive relationship with the area merchants and inform them weekly of the construction schedule to assure that impacts to their businesses are kept at a minimum throughout the contract period.

3.03 OBSTRUCTIONS

A. Attention is directed to Article 3.6, Existence of Utilities at the Work Site, of the General Conditions.

B. The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions to be taken by the Contractor to protect the health, safety and welfare of workers and of the public. Facilities requiring special precautions include, but are not limited to: overhead electrical wires; conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter or pipelines operating at pressures greater than 60 psi (gage); underground electric supply system conductors or cables either directly buried or in duct or conduit that do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical grounded metal shields or sheaths; underground electrical conductors with potential to ground more than 300 volts; and shallow water laterals.

C. The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to performing any excavation. Regional notification centers include, but are not limited to, the following.

Notification Center	Telephone Number
Underground Service Alert-Southern California (USA)	811 1-800-422-4133
Cable, Pipe & Leak Detection (CPL) (For MTS Facilities)	1-619-873-1530

As MTS facilities are excluded from USA markouts, Contractor shall have all MTS facilities located and marked out by CPL or other approved utility locating subcontractor familiar with MTS facilities.

D. Contractor to verify location and elevation of all exiting utilities by potholing and mark out prior to excavation as necessary. Notifications shall be performed as necessary to complete the improvements without damage to existing facilities. Any work on the underground facilities shall be coordinated with the Engineer. The Contractor shall schedule a utility coordination meeting and contact all attendees a minimum of 48 hours in advance of the meeting date. Meeting attendees shall include the Engineer or Project Manager, the Contractor’s representative, the utility representative (as necessary), and the approved utility locating subcontractor.

3.04 PRESERVATION OF PROPERTY

A. Due care shall be taken to avoid damage or injury to improvements of project facility or adjacent facilities, their utilities, and landscaping features that are not designated for removal as indicated on the plans or in the Technical Specifications. Any damage to the property or adjacent properties incurred due to the operations of the Contractor shall be repaired, replaced, or restored at the Contractor’s expense. Repair, replacement, or restoration shall be performed such that facilities damaged will be at the same condition as when the Contractor had entered the site, or as good as required by the specifications accompanying the contract. Additional requirements shall be in compliance with Article 3.29, Protection of Work and Property, of the General Conditions.

3.05 JOB SITE COOPERATION

A. Attention is directed to Article 3.43, Separate Contracts, of the General Conditions.

B. Where required, Contractor shall coordinate efforts with utility agencies for adjustment or relocation of utilities that will affect Contractor's work.

3.06 CONSTRUCTION STAGING AREA

A. No MTS right-of-way or LRT stations shall be used for staging, storage, or laydown areas during the construction period except as shown on the approved Construction Area Work Plan. The Contractor shall be responsible for procuring any onsite or offsite construction staging and laydown area, and shall be responsible for any property rental, permits, security, lighting, fencing, utilities or other temporary measures required to properly utilize the site as a construction staging and laydown area. The Contractor shall accept full responsibility and liability for use of the site during the construction period, and MTS shall not be liable for any claims resulting from Contractor's use of an offsite construction staging and laydown area.

3.07 DEVELOP WATER SUPPLY

A. Developing a water supply and applying watering shall conform to Article 3.21, Compliance with General Construction Permit for Construction Activity Schedule, and Article 3.22, Cleaning Up, of the General Conditions. Existing LRT station water supply system shall not be used for construction purposes.

3.08 DUST CONTROL

A. Dust control shall conform to the requirements of Article 3.29, Protection of Work and Property, in the General Conditions. Control dust resulting from work, inside and outside of work limits. Inside work limits Contractor may use water application, dust palliative, or both. Water usage for dust control shall be such that runoff from work area is minimized and sediment is prevented from entering storm drain systems. Dust control for outside work limits includes preventing buildup of dirt on adjoining travelled ways and covering of material producing dust when hauled. However, the Contractor shall endeavor, whenever possible, to restrict the use of water to control dust due to the current need to conserve water.

3.09 PROJECT APPEARANCE

A. Project Appearance shall conform to the provisions in Article 3.22, Cleaning Up, of the General Conditions. The Contractor shall maintain a neat appearance to the work at all times. Rail, wood ties, fencing, vegetation, concrete and asphalt rubble, and other debris developed during construction operations shall be disposed of concurrently with its removal. No stockpiling of demolition materials or debris will be permitted within the MTS or Public right-of-way. Materials to be relocated shall be neatly stored in a secure area.

3.10 SOUND CONTROL

A. Sound control shall conform to the provisions in Article 3.24, Excessive Noise, of the General Conditions. This requirement in no way relieves the Contractor from responsibility for complying with local ordinances regulating noise levels. For any night work, the Contractor will be required to obtain a Noise Permit from the City of San Diego or other authority with jurisdiction.

3.11 TEMPORARY TRAFFIC CONTROL

A. GENERAL

1. Temporary Traffic Control, consisting of flagging, maintaining vehicular and pedestrian traffic, supplying, placing, and removing of temporary traffic control devices, application and removal of any temporary traffic striping and pavement markings required, and the replacement of any permanent traffic striping and pavement markings damaged or removed during construction at the locations as shown on the Plans or where designated by the Engineer, shall comply with the provisions in Article 3.16, Traffic Control, of the General Conditions.

2. Roadway flagging as required by City of San Diego traffic control permits to be obtained by the Contractor shall conform to Section 12, Temporary Traffic Control of the Caltrans Standard Specifications. However, payment shall be as specified within these Technical Specifications. All roadway flagging shall be described in detail within the Contractor's related Work Plan.

3. All furnishings shall be reinstalled before the construction of a phase is considered complete and the next construction phase at another area may begin.

4. Any existing permanent striping that is damaged during construction shall be replaced to its original state and layout. The work performed in connection with replacing the striping shall conform to the provisions in Section 32 17 23, Pavement Markings, of the Technical Specifications.

3.12 MAINTAINING VEHICULAR TRAFFIC

A. General

1. The Contractor shall notify all emergency services, transportation companies, or others identified on the plans in compliance with the City of San Diego Street Closure Permits in advance of implementing any construction detour.

2. The Contractor shall maintain all temporary vehicular access facilities in a safe and neat condition from time of installation to time of removal.

B. Parking

1. If parking is to be restricted during construction, the Contractor shall post "tow-away/no parking" signs 24 hours in advance after receiving approval from the Engineer and the City of San Diego Police Department. The sign shall contain "days/hours" information and be posted so as to be visible by the public.

2. Personal vehicles of the Contractor's employees shall not be parked within the railway right-of-way including any section closed to public traffic, except personal vehicles used in lieu of the Contractor's equipment. Said vehicles shall be included in the daily activity report and shall be marked with permanent or temporary name plates identifying contracting firm engaged in the work.

C. Lane/Street Closures

1. A street or lane shall not be closed until the Contractor is ready to prosecute the work with diligence, unless approved otherwise by the City of San Diego. Should the Engineer determine that the work, within a closed street or lane, is not proceeding in a timely manner, the Engineer may order a suspension of work.

2. When lane closures are made for work periods only, at the end of each work period all components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder.

3. Whenever traffic lanes or streets are to be closed to public traffic, the Contractor shall close lanes and streets as shown in the current California MUTCD.

4. It shall be the responsibility of the Contractor performing work on a public street, that involves a lane or street closure, to follow the local agency approved traffic control plans. If there is not a local agency approved traffic control plan for work to be performed, the Contractor shall prepare traffic control plans, obtain permits from the local agency, install and maintain the traffic control devices per the approved plan, as may be required to ensure the safe movement of vehicular traffic and bicyclists through and around the work area and provide maximum protection and safety to construction workers.

D. Traffic Lane Widths and Clearances

1. When traffic cones or portable delineators are used to delineate a temporary edge of the traffic lane, the line of cones or portable delineators shall be considered to be the edge of traffic lane; however, the Contractor shall not reduce the width of an existing lane to less than 12 feet without written approval from the governing agencies Traffic Engineering Department.

2. Notifications

a. The Contractor shall notify the following at least five (5) working days in advance of any work on a public street:

Underground Service Alert	1-800-422-4133
San Diego Transit	619-238-0100

b. San Diego

City of San Diego Police	619-531-2000
Fire Department	619-533-4300
Traffic Signals	619-527-7500
Trash Pickup	858-694-7000

c. Lemon Grove

Traffic Signals	619-825-3810
Sheriff's Department	619-337-2000
Heartland Fire Department	619-667-1355
Trash Pickup	858-694-7000

d. La Mesa

Traffic Signals	619-463-6611
Police Department	619-667-1400
Heartland Fire Department	619-667-1355
Trash Pickup	800-249-8411

e. El Cajon

Traffic Signals	619-441-1650
Police Department	619-579-3311
Heartland Fire Department	619-667-1355
Trash Pickup	619-444-1088

E. Construction Area Work Plan

1. The Contractor's Work Plan, in accordance with Article 1.08, Work Plans, of these Technical Specifications, shall indicate proposed staging, construction sequencing, laydown areas, detours, lane closures, barricades, traffic control devices, temporary fencing, signage, traffic and pedestrian handling on both public streets and transit properties, and shall include traffic control plans approved by the City of San Diego for any work within the public streets or right of way.

F. Deviations

1. Minor deviations from the requirements of this section which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if, in the opinion of the Engineer, public vehicular traffic will be better served and the work expedited. Such deviations shall not be executed until the Engineer has approved them in writing. All other modifications shall be made by Contract Change Order.

3.13 MAINTAINING PEDESTRIAN TRAFFIC

A. General

1. The Contractor shall provide and maintain safe pedestrian access to all sidewalks adjacent to the construction area. Work areas, including temporary walkways, shall be delineated with barriers consisting of a top and bottom rail constructed of ¾" pipe and Occupational Safety and Health Administration (OSHA)-type plastic mesh, or equal. Yellow caution tape will not be permitted.

2. The Contractor shall develop a Construction Area Work Plan in accordance with Article 3.12 Maintaining Vehicular Traffic, of these Technical Specifications. The Construction Area Work Plan shall be submitted to the Engineer for review and prepared in accordance with Article 1.08, Work Plans of these Technical Specifications. The Construction Area Work Plan for each phase of work shall show the layout of pedestrian circulation control devices.

3. The Contractor shall maintain all temporary pedestrian access facilities in a safe and neat condition from time of installation to time of removal.

B. Sidewalk Closures and Local Business Impact

1. Where local businesses are impacted by construction activities the Contractor shall be responsible for maintaining pedestrian access to those businesses. “Impact” shall mean: where construction activities impede, redirect, or otherwise cause pedestrian traffic flow to deviate from current or intended flow patterns used to gain access to businesses.
2. The Contractor is required to meet with existing businesses in the area to keep the public fully informed as to the impact to their property and/or business. The Contractor shall communicate with each property owner/tenant impacted by its operations prior to the start of work. In addition, the Contractor shall maintain a proactive relationship with the area merchants and inform them weekly of the construction schedule to assure that impacts to their businesses are kept at a minimum throughout the contract period.
3. Contractor shall construct painted white 4’ x 6’ plywood signs with black lettering indicating ‘Open for Business’ for each business impacted by traffic control. The signs shall be clearly visible and maintained for the duration of construction activities impacting each business. Each business impacted shall receive an individual sign.
4. The Contractor shall coordinate the pedestrian access needs with the construction staging as well as with any adjacent areas that are currently or scheduled for construction by others. The Contractor shall submit, to the Engineer, an initial pedestrian traffic control plan along with the vehicular traffic control plan, and construction area plan.
5. At least one walkway shall be available at all times. If the Contractor's operations require the closure of one walkway, then another walkway shall be provided nearby, off the traveled roadway. For sidewalk closures or work in direct contact with an existing sidewalk, the Contractor shall construct a 6’ chain link fence to protect the limits of the work area with all required hardware, including kick boards. Walkways shall be kept clear of obstructions. Closure signs shall be placed to provide pedestrians clear warning of closure ahead and shall provide clear direction to adjacent routes.

C. Deviations

1. Minor deviations from the requirements of this section which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if, in the opinion of the Engineer, public pedestrian traffic will be better served and the work expedited. Such deviations shall not be executed until the Engineer has approved them in writing. All other modifications shall be made by Contract Change Order.

3.14 TEMPORARY TRAFFIC CONTROL DEVICES

A. General

1. All temporary traffic control devices shall be furnished by the Contractor.
2. It shall be the responsibility of the Contractor performing work on a public street to install and maintain the temporary traffic control devices as shown on the Plans and as specified, as required to ensure the safe movement of traffic, pedestrians and bicyclists through and around the work area and provide maximum protection and safety to construction workers.

3. The Contractor shall maintain all temporary traffic control devices in a safe and neat condition from the time of installation to the time of removal. If any component of the temporary traffic control devices is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component and restore the component to its original location.

4. Equipment, material, or debris shall not be stored or remain in the public right of way without prior acceptance by the Engineer.

B. Signs

1. The Contractor shall erect advance warning signs per the traffic control plans as approved by the governing agency informing the public of the intent to close any street at least five (5) working days in advance of the proposed closure.

2. The Contractor shall provide detour signing to direct traffic along alternate routes during the closure(s) in accordance with the traffic control plans as approved and permitted by the governing agency.

3. No signing is shown on the Plans. All construction area signs shall conform to the signing shown in the latest "California Manual on Uniform Traffic Control Devices."

C. Barricades

1. Pedestrian and vehicular barricades shall be furnished, placed, and maintained at the locations shown on the approved traffic control plans, specified in these Technical Specifications or where designated by the Engineer.

2. Temporary traffic control sign and marker panels shall be installed on barricades in a manner determined by the Engineer at the locations shown on the approved traffic control plans.

D. Steel Plates

1. Whenever traffic is permitted over or adjacent to trenches or other depressions, the Contractor shall furnish and maintain steel plating unless other means of protecting the public and the work are expressly approved by the Engineer.

2. Steel plates used for bridging shall extend 12 in. beyond the edges of trenches.

3. Steel plates shall conform to the following minimum thickness:

	Trench Width	Minimum Plate Thickness
a.	300 mm (12 in.)	13 mm (1/2 in.)
b.	450 mm (18 in.)	19 mm (3/4 in.)
c.	600 mm (2 ft)	22 mm (7/8 in.)
d.	900 mm (3 ft)	25 mm (1 in.)
e.	1.2 m (4 ft)	38 mm (1 ½ in.)

4. Note: For spans greater than 4 ft prepare and submit a structural design to the Engineer for review and made in accordance with Article 1.06, Submittals, of the these Technical Specifications.

5. Trenches shall be adequately shored to support bridging the traffic loads.

6. For speeds of 45 mph or less, temporary paving with cold asphalt concrete shall be used to feather the edges of the plates. A “Rough Road” sign (W33), with black lettering on an orange background shall be used in advance of steel plate bridging in addition with any other required construction signing.

E. Temporary Traffic Striping and Pavement Markings

1. During temporary traffic striping and pavement marking operations, traffic shall be controlled with lane closures, as provided for under these Technical Specifications, or by use of an alternate traffic control plan proposed by the Contractor. The Contractor shall not start traffic striping and pavement marking operations using an alternate plan until they have submitted their plan to the Engineer and have received written approval of said plan.

3.15 CONSTRUCTION AREA LIGHTING

A. All working areas utilized by the Contractor to perform work during the hours of darkness, shall be lighted to conform to the minimum illumination intensities established by the California Division of Industrial Safety Construction Safety Orders.

B. All lighting fixtures shall be mounted and directed in a manner precluding glare to adjacent residences, businesses, approaching traffic, and shall not be directed parallel to the track to avoid interfering with the vision of the train operators and crews. In addition, lighting fixtures shall not obscure any railroad signals.

3.16 TEMPORARY FENCING

A. Where applicable and in accordance with these Technical Specifications, temporary fencing shall be securely anchored and shall only be placed within MTS ROW except where temporary fencing is used for pedestrian traffic control. The Contractor shall submit a temporary fencing as part of their Work Plan for MTS approval prior to the installation of any temporary fencing.

3.17 CONSTRUCTION SURVEYING

A. Construction staking shall be in conformance with Chapter 12 of the Caltrans Surveys Manual, dated November 2012. Legible copies of all construction operations staking sheets shall be provided to Engineer as part of the related Work Plan.

B. All field construction surveying required for accurate location and the construction of the various items of work under the Contract shall be performed and furnished by the Contractor.

C. The Contractor shall be responsible for performing a site verification survey to confirm the existing grades and conditions at the site prior to any grading or construction operations. Any variations shall be brought to the attention of the Engineer.

D. The Contractor shall replace any existing property corner markers, monuments, and local agencies' well monuments disturbed during construction operations in accordance with Article 3.29, Protection of Work and Property, of the General Conditions. These new markers, monuments, and well monuments shall be documented by a record of survey map or corner record prepared in accordance with Section 8771 of the Business and Professions Code and all applicable laws and regulations and filed in the Office of the County Recorder of San Diego County at the Contractor's expense.

E. The Contractor shall be responsible for preparing and filing with the San Diego County surveyor a Corner Record of the references to existing monuments within the area of each street or highway to be reconstructed under this Contract, prior to any reconstruction, as required by Section 8771 of the Business and Professions Code.

3.18 TRACTION POWER SAFETY AND CONVENIENCE OF TROLLEY OPERATIONS

A. Trolley operations utilize overhead 650-volt DC power lines. Except as noted in Article 1.03, Order of Work, of these Technical Specifications, these wires will be energized at all times. Extreme caution shall be exercised when working in the vicinity of these wires. The Contractor shall maintain 10 foot clearance from energized overhead wires when working with equipment.

B. The Contractor shall not allow metal equipment or other items to contact the railroad tracks except when power has been shut off. These tracks act as the negative return for the 650 VDC propulsion current in the overhead wires. Hi-rail vehicles will be allowed if 10 foot clearance from the overhead wires is maintained when energized in the MTS authorized work locations. All Contractor equipment shall be proposed for MTS approval as part of the Contractor’s site specific Work Plan.

C. The Contractor shall not shunt (ground) between the rails except when operating equipment necessary for the work with an approved Work Plan. A shunt activates the signaling system, including railroad crossing protection and gates at nearby cross streets.

3.19 MAINTAINING RAIL TRAFFIC

A. General

1. All Contractor work shall be performed with an approved Work Plan and not interfere with normal rail operations.
2. All work involving crossing or work inside the MTS railroad right of way shall be under the control of SDTI.
3. The SDTI dispatcher can be reached at (619) 595-4960
4. Contractor shall not operate construction equipment that will encroach within 15 feet of any track that is being used by LRT vehicles during the respective operating hours without appropriate notification and flagging. Contractor shall not store equipment, tools, and materials within fifteen feet from any operable track.
5. Contractor shall be liable for Liquidated Damages, in the event that transit vehicles are unable to operate normally as a result of the Contractor's operations.
6. A planned "slow order" in a Contractor’s approved Work Plan shall not be interpreted as affecting normal trolley operations.

7. MTS Operations Definitions

   a. Slow order: A temporary reduction in the track's speed limit due to a condition left behind by a work crew. The maximum duration for a slow order to remain in place is 48 hours. Contractor shall propose and MTS will evaluate planned slow orders with the goal of limiting revenue service delays to no more than 5 minutes from the publicly posted schedule.

   b. Work zone restriction: A crew working within 10' of the nearest rail. This requires a 10 MPH speed restriction and on-track protection provided by SDTI flag persons. For the purposes of this contract, work zone restrictions are limited to 1500' within the project limits. MTS will allow up to 3 concurrent restrictions, however the cumulative distance of restrictions is limited to 1500' total.

   c. Work zone advisory: A crew working within 10-15' of the nearest rail. This requires no speed restriction, but the crew is accompanied by an SDTI watchperson.

B. Trackwork

1. All work shall take special care to maintain the integrity of operational track sections during other nearby track section construction and/or adjacent non-track elements.

2. It will be required to establish a planned "slow order" when the track is in a condition that prevents normal operating speeds of scheduled transit vehicles or freight trains or when light rail transit vehicles are required to temporarily operate through hand-operated switches.

   a. At the conclusion of an AWW, MTS will allow track to be placed back into revenue service without being destressed, resulting in a slow order. This is limited to one continuous mile and shall be resolved within 48 hours.

   b. At the conclusion of an AWW, MTS will allow a portion of the rail joints to remain as temporary bolted joint connections until remaining thermite welds can be completed , resulting in a slow order. This is limited to one continuous mile and shall be resolved within 48 hours.

C. Traction Power System Work

1. When requested, MTS will de-energize the traction power system between the hours of 1:45 AM and 4:00 AM. It will take MTS 30 minutes to de-energize and 30 minutes to re-energize the system within the above time. De-energizing the system shall conform to the procedures of MTS (known as the "Red Tag Clearance Procedure").

2. It will be required to establish a planned "slow order" when the catenary is in a condition that prevents normal operating speeds of scheduled transit vehicles or freight trains.

3. MTS will provide access to adjacent substations when performing testing for the OCS system during AWWs. Contractor shall request substation access as part of the Contractor's submitted Work Plan for MTS review and approval.

D. Signal System Work

1. The signaling system, including any interfaces, shall be fully tested and placed in service by the end of each work window.

2. All preparatory work shall be done prior to each Segment cutover and shall include, but not be limited to:

   a. Installation of all signal block foundations, enclosures, conduit, and block signals (installed and bagged), complete and in-place with cables terminated and gold nuts backed off. Signals that will interfere with the line of sight of existing signals shall not be installed until the “Railway Block Signaling Cut-over” in which the signal will be located.

   b. Installation of new insulated joints and impedance bonds complete in-place with temporary bypass bonds where needed to maintain the existing signaling system functioning properly.

   c. Installation of, and adjustment of, switch machines on ties, complete with all conduit and cables terminated and gold nuts backed off.

   d. Track circuit’s “track lead” cabling tested and terminated to rails and terminals with gold nuts backed off inside new signal enclosure.

   e. Crossing warning devices and new control system shall be complete in-place, and operational.

   f. Fiber optic network communications for the railroad signal system shall be complete in-place and be operational for a consecutive 72 hours.

   g. New electrical service complete in-place and energized.

E. Segment Cutover

1. Any cut-over from construction to revenue operation of track, signal, traction power, and catenary work shall be done during an AWW. If extensions to the above times are required to construct the project, Contractor shall submit the request to MTS for such extensions(s) as part of the work plan and schedule submittals. The request shall thoroughly document the activity required, the duration of the extension, the reason for the extension and why it could not otherwise be accommodated. MTS will attempt to honor all such requests; however, MTS reserves the right to reject any or all such requests based upon its evaluation. No adjustment to the Contract Bid prices will be made if any or all requests are rejected.

2. A detailed cutover plan requesting exact dates and times shall be submitted for approval at least thirty (30) working days prior to the requested date. Contractor shall be available to discuss the details of the cutover with MTS and SDTI staff.

3.20 RAILROAD COORDINATION

A. The Contractor must understand the Contractor's right to enter Railroad's right of way is subject to the absolute right of Railroad to cause the Contractor's work on Railroad's right of way to cease if, in the opinion of Railroad, Contractor's activities create a hazard to Railroad's right of way, employees, and operations.

B. Contractor employees are prohibited from positioning themselves, placing material, or positioning machinery on the railroad right-of-way unless under control of railroad flagman at each work location. All workers, equipment, and materials shall be cleared from the track and all equipment shall be held at idle until the train has passed and the flagman has authorized the resumption of work. The minimum clearance distance for workers, material, and equipment shall be at the discretion of the flag person.

3.21 RECORD DRAWINGS

A. Record accurately on one complete set of full size black and white prints denoting variation in work from original drawings. All recorded variations shall be done in red and yellow. Electronic submittal of record drawings shall be subject to MTS approval.

B. During construction, a copy of the plans shall be located in the signal enclosures that accurately depicts the work and existing conditions. Markups shall be shown on record drawings daily or as work is performed. These drawings are subject to inspection at any time.

C. Dimensioning shall be from two permanent points of reference (sidewalks, pavement, curbs, street lights, buildings, centerline of track, etc.). All drafting shall be clearly legible and dimensions shall be no smaller the 0.25 inches in size. Delineation between lines (edge of curb, irrigation line, edge of asphalt, etc.) shall be clearly made by note or line type.

D. Upon acceptance of work of each Segment, Contractor shall submit the complete and final set of record drawings to the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. Mobilization

1. Mobilization shall be measured for payment as a lump sum.

C. Progress Schedule

1. No separate measurement shall be made for Progress Schedule.

D. Work Plans

1. No separate measurement shall be made for Work Plans.

E. Temporary Traffic Control

1. No separate measurement shall be made for Temporary Traffic Control

F. Quality Control Plan

1. No separate measurement shall be made for the Quality Control Plan.

G. Safety Plan

1. No separate measurement shall be made for the Safety Plan.

H. Surveying

1. No separate measurement shall be made for Surveying.

I. Storm Water Management

1. Storm Water Management shall be measured for payment as a lump sum.

J. Owner Furnished Track Material Handoff

1. Owner Furnished Track Material Handoff shall be measured for payment as a lump sum.

K. Owner Furnished Signal Material Handoff

1. Owner Furnished Signal Material Handoff shall be measured for payment as a lump sum.

L. Owner Furnished Overhead Catenary System (OCS) Material Handoff

1. No separate measurement shall be made for Owner Furnished OCS Material.

M. Temporary Interface Case Installation/Wiring/Removal/Relocation for Segment Phasing

1. Temporary Interface Case Installation/Wiring/Removal/Relocation for Segment Phasing shall be measured for payment as a lump sum.

N. System Signage

1. No separate measurement shall be made for System Signage

4.02 PAYMENT

A. No separate payment shall be made for the requirements of this Section unless specifically noted for separate payment as stated herein. Full compensation for complying with the requirements of this section, not otherwise provided for, shall be considered as included in contract prices paid for the various items of work involved, and no additional compensation will be allowed therefore.

B. Mobilization

1. The contract lump sum price paid for “Mobilization” shall be in accordance with Article 3.34, Payment, of the General Conditions.

C. Project Schedule

1. Full compensation for Project Schedule shall be considered included in the contract prices paid for the various related items of work and no separate payment will be made.

D. Temporary Traffic Control

1. Full compensation for Temporary Traffic Control shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

E. Quality Control Plan

1. Full compensation for the Quality Control Plan shall be included in the contract prices paid for the various related items of work and no separate payment will be made.

F. Safety Plan

1. Full compensation for the Safety Plan shall be included in the contract prices paid for the various related items of work and no separate payment will be made.

G. Surveying

1. Full compensation for Surveying shall be included in the contract prices paid for the various related items of work and no separate payment will be made.

H. Storm Water Management

1. The Contract lump sum price paid for Storm Water Management shall include full compensation for furnishing all labor, materials, tools, equipment, required fees, and all incidentals in connection with creation of a water pollution control plan, implementation, administration and maintenance of best management practices for storm water management. Payment is contingent on Contractor's obligation to perform inspections and submit reports in a timely manner and will be withheld for non-compliance.

I. Owner Furnished Track Material Handoff

1. The Contract lump sum price paid for Owner Furnished Track Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, planning, managing, transporting, offloading and storing Owner Furnished Track Material and Owner Furnished 155 RE Head Hardened Steel Rail.

J. Owner Furnished Signal Material Handoff

1. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished Signal Material.

K. Owner Furnished Overhead Catenary System (OCS) Material Handoff

1. Full compensation for Owner Furnished OCS Material Handoff shall be included in the contract prices paid for the various related items of work and no separate payment will be made.

L. Temporary Interface Case Installation/Wiring/Removal/Relocation for Segment Phasing

1. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and transporting, installing, removing and relocating each interface case in the field for Segment Phasing Cutovers, including returning the cases, including the Phase 1 temporary interface case to MTS once the project is completed.

M. System Signage

1. Full compensation for System Signage shall be included in the contract prices paid for the various related items of work and no separate payment will be made.

END OF SECTION

SECTION 03 21 00
REINFORCING STEEL

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. The Work in this Section consists of furnishing reinforcing steel for retaining wall construction.

1.02 RELATED SECTIONS

A. Section 03 31 00 – Structural Concrete

1.03 REFERENCES

A. American Concrete Institute (ACI):

1. SP 66, ACI Detailing Manual.

2. 318, Building Code Requirements for Structural Concrete.

B. ASTM International (ASTM):

1. A1022, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.

2. A1022, Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.

3. A615, Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

4. A706, Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.

C. American Welding Society (AWS):

1. D1.4, Structural Welding Code – Steel Reinforcing Bars.

D. Concrete Reinforcing Steel Institute (CRSI):

1. Manual of Standard Practice.

E. Current California Department of Transportation Standard Specifications Current or Latest Edition.

F. American Railway Engineering and Maintenance-of-Way Association (AREMA).

1. Chapter 8 – Concrete Structures and Foundations.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Submit product technical data including:

1. Acknowledgement that products submitted meet requirements of standards referenced.

2. Manufacturer's installation instructions.

3. Mill certificates for all reinforcing.

4. Manufacturer and type of proprietary rebar mechanical splices.

5. Manufacturer and type of rebar adhesive anchor including installation instructions.

C. Qualifications of welding operators, welding processes and procedures.

D. Rebar number, sizes, spacing, dimensions, configurations, locations, mark numbers, lap splice lengths and locations, concrete cover and rebar supports.

E. Sufficient rebar details to permit installation of reinforcing.

F. Rebar details in accordance with ACI SP 66.

G. All mechanical splices.

H. Locations where proprietary rebar mechanical splices are required or proposed for use.

I. Shop Drawings shall be in sufficient detail to permit installation of reinforcing without reference to Contract Plans.

1. Shop Drawings shall not be prepared by reproducing the plans and details indicated on the Contract Plans but shall consist of completely redrawn plans and details as necessary to indicate complete fabrication and installation of all reinforcing steel.

1.05 QUALITY ASSURANCE

A. Welding operators, processes and procedures shall be qualified in accordance with AWS D1.4.

B. Welding operators must have been qualified during the previous 12 months prior to commencement of welding.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Support and store all reinforcing above ground.

B. Ship to jobsite with attached plastic or metal tags with permanent mark numbers which match the Shop Drawing mark numbers.

C. Handling of Epoxy-Coated Rebar:

1. Use padded or nonmetallic slings and padded straps to protect coated reinforcement from damage.

2. Handle bundled bars to prevent sagging that could damage the coating.

3. Do not drop or drag rebars.

4. Store on wooden cribbing.

5. Coated rebars subject to rejection by Engineer if rebar coating has been damaged. The rebars may be used for repair if approved by Engineer.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable, or approved equivalent as a comparable product.

1. Rebar adhesive anchors:

a. HIT-HY200 System by HILTI FASTENING SYSTEMS, INC.

b. Red Head Adhesive Anchoring Systems

c. Pure 110+ by Dewalt

2. Rebar mechanical splices:

a. nVent Lenton Rebar Splicing by Erico, Inc.

b. Richmond dowel bar splicer system by Richmond Screw and Anchor Co., Inc.

3. Bar-Grip Systems by Barsplice Products, Inc

2.02 MATERIALS

A. Reinforcing Bars: ASTM A615, grade 60, deformed.

B. Reinforcing Bars to be Welded: ASTM A706.

C. Welded Wire Reinforcement: ASTM A185.

D. Smooth Dowel Bars: ASTM A615, grade 60 with metal end cap to allow longitudinal movement equal to joint width plus 1 inch.

E. Epoxy-Coated Rebars: ASTM A775 and ASTM A615, Grade 60, meeting Annex A1 for epoxy coating.

F. Epoxy-Coated Rebar Patching Material:

1. Compatible with the coating material.

2. Inert in concrete.

3. Meet requirements of Annex A1 of ASTM A775.

4. Obtained from the manufacturer of the epoxy resin that was used to originally coat the rebars.

G. Proprietary Rebar Mechanical Splices: To develop in tension and compression a minimum of 125 percent of the yield strength of the rebars being spliced.

H. Welding Electrodes:

1. E90 meeting requirements of AWS D1.4.

I. Rebar Adhesive Anchors:

J. Manufactured for the specific purpose of embedding and developing 125 percent of the yield strength of rebars in hardened concrete.

2.03 ACCESSORIES

A. Metal Chairs, Runners, Bolsters, Spacers, Hangers, and Other Rebar Supports:

1. Plastic-coated tips in contact with forms.

2. Plastic coating meeting requirements of CRSI Manual of Standard Practice.

B. Protective plastic caps at mechanical splices.

2.04 FABRICATION

A. Tolerances:

1. Sheared lengths: +1 inch.

2. Overall dimensions of stirrups, ties and spirals: +1/2 inches.

3. All other bends: +0 inch, -1/2 inches.

B. Minimum diameter of bends measured on the inside of the rebar to be as indicated in ACI 318 Paragraph 7.2.

C. Ship rebars to jobsite with attached plastic or metal tags.

1. Place on each tag the mark number of the rebar corresponding to the mark number indicated on the Shop Drawing.

2. Mark numbers on tags to be so placed that the numbers cannot be removed.

D. For epoxy-coated rebars, use only plastic tags secured to rebars by nylon or plastic ties.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Tolerances:

1. Rebar placement:

a. Clear distance to formed surfaces: +1/4 inches.

b. Minimum spacing between bars: -1/4 inches.

c. Top bars in slabs and beams:

1) Members 8 inches deep or less: +1/4 inches.

2) Members between 8 inches and 2 feet deep: -1/4 inches, +1/2 inches.

3) Members more than 2 feet deep: -1/4 inches, +1 inches.

d. Crosswise of members: Spaced evenly within +1 inches.

e. Lengthwise of members: +2 inches.

2. Minimum clear distances between rebars:

a. Beams, walls and slabs: Distance equal to rebar diameter or 1 inch, whichever is greater.

b. Columns: Distance equal to 1-1/2 times the rebar diameter or 11/2 inches, whichever is greater.

c. Beam and slab rebars shall be threaded through the column vertical rebars without displacing the column vertical rebars and still maintaining the clear distances required for the beam and slab rebars.

B. Minimum concrete protective covering for reinforcement, unless indicated otherwise on Plans:

1. Three (3) inches for concrete cast against earth, 2 inches all other locations.

C. Unless indicated otherwise on Plans, provide splice lengths for reinforcing as follows:

1. For rebars: Class B splice meeting the requirements of Paragraph 12.15 of ACI 318.

2. For welded wire reinforcement:

a. Splice lap length measured between outermost cross wires of each fabric sheet shall not be less than one (1) spacing of cross wires plus 2 inches, nor less than 1.5 x development length nor less than 6 inches.

b. Development length shall be as required for the yield strength of the welded wire reinforcement in accordance with Paragraph 12.8 of ACI 318.

3. Submit splices of reinforcing not specifically indicated or specified subject to approval of Engineer.

a. Mechanical proprietary splice connectors may only be used when approved.

D. Reinforcing Steel Splices:

1. Splices of reinforcing bars shall consist of lap splices, service splices, or ultimate butt splices.

2. Splicing of reinforcing bars will not be permitted at a location designated on the plans as a "No-Splice Zone."

3. At the option of the Contractor, reinforcing bars may be continuous at locations where splices are shown on the plans.

4. The location of splices, shall be determined by the Contractor using available commercial lengths where practicable.

5. Unless otherwise shown on the plans, splices in adjacent reinforcing bars at any particular section shall be staggered.

a. The minimum distance between staggered lap splices or mechanical lap splices shall be the same as the length required for a lap splice in the largest bar.

b. The minimum distance between staggered butt splices shall be 2 feet, measured between the midpoints of the splices along a line which is centered between the axes of the adjacent bars.

6. Lap Splicing Requirements:

a. Splices made by lapping shall consist of placing reinforcing bars in contact and wiring them together, maintaining the alignment of the bars and the minimum clearances.

b. Should the Contractor elect to use a butt welded or mechanical splice at a location not designated on the plans as requiring a service or ultimate butt splice, this splice shall conform to the testing

requirements for service splice.

c. Reinforcing bars shall not be spliced by lapping at locations where the concrete section is not sufficient to provide a minimum clear distance of 2 inches between the splice and the nearest adjacent bar.

d. The clearance to the surface of the concrete specified on the Plans shall not be reduced.

7. Service Splicing and Ultimate Butt Splicing Requirements:

a. Service splices and ultimate butt splices shall be either butt welded or mechanical splices, shall be used at the locations shown on the plans, and shall conform to the requirements of these Specifications and the Plans.

8. Mechanical Splices:

a. Mechanical splices shall not be used for any reinforcing steel in the “Ultimate Splice Zone” as indicated on the Plans.

b. Any mechanical splices proposed by the Contractor shall be submitted for review and approval by the Engineer prior to reinforcing steel fabrication.

c. Only mechanical splices prequalified by the Transportation Laboratory of the California Department of Transportation shall be allowed.

d. Submittal of proposed mechanical splices shall include:

1) The type or series identification of the splice material including tracking information for traceability.

2) The bar grade and size number to be spliced.

3) A copy of the manufacturer's product literature giving complete data on the splice material and installation procedures.

4) A statement that the splicing systems and materials used in conformance with the manufacturer's installation procedures will develop the required tensile strengths,

based on the nominal bar area, and will conform to the total slip requirements and the other requirements in the California Department of Transportation Standard Specifications.

5) A statement that the splice material conforms to the type of mechanical splice in the California Department of Transportation current prequalified list.

9. Butt Welded Splices:

a. Except for resistance butt welds, butt welded splices of reinforcing bars shall be complete joint penetration butt welds conforming to the requirements in AWS D 1.4, and these Specifications.

b. Welders and welding procedures shall be qualified in conformance with the requirements in AWS D 1.4.

c. Only the joint details and dimensions as shown in Figure 3.2, "Direct Butt Joints," of AWS D 1.4, shall be used for making complete joint penetration butt welds of bar reinforcement.

1) Split pipe backing shall not be used.

d. Butt welds shall be made with multiple weld passes using a stringer bead without an appreciable weaving motion.

1) The maximum stringer bead width shall be 2.5 times the diameter of the electrode and slagging shall be performed between each weld pass.

2) Weld reinforcement shall not exceed 0.16 inches in convexity.

e. Electrodes used for welding shall meet the minimum Charpy Vnotch impact requirement of 27°J at -4 degrees.

f. All bars to be welded shall conform to the requirements of ASTM A706.

g. In the event that any of the specified preheat, interpass, and post weld cooling temperatures are not met, all weld and heat affected zone metal shall be removed and the splice rewelded.

h. Welding shall be protected from air currents, drafts, and precipitation to prevent loss of heat or loss of arc shielding.

1) The method of protecting the welding area from loss of heat or loss of arc shielding shall be subject to approval by the Engineer.

i. Reinforcing bars shall not be direct butt spliced by thermite welding.

j. Procedures to be used in making welded splices in reinforcing bars, and welders employed to make splices in reinforcing bars, shall be qualified by tests performed by the Contractor on sample splices of the type to be used, before making splices to be used in the work.

10. Resistance Butt Welding:

a. Shop produced resistance butt welds shall be produced by a fabricator who is approved by the Transportation Laboratory of the California Department of Transportation.

b. Before manufacturing hoops using resistance butt welding, the Contractor shall submit to the Engineer the manufacturer's Quality Control (QC) manual for the fabrication of hoops.

1) As a minimum, the QC manual shall include the following:

a) The preproduction procedures for the qualification of material and equipment.

b) The methods and frequencies for performing QC procedures during production.

c) The calibration procedures and calibration frequency for all equipment.

d) The Welding Procedure Specification (WPS) for resistance welding.

e) The method for identifying and tracking lots.

11. Service Splice and Ultimate Butt Splice Testing Requirement:

a. Testing and reporting of test results for Service and Ultimate Butt Splices shall conform to the California Department of

Transportation Standard Specification, Section 52 Reinforcement.

E. Placing Rebars:

1. Assure that reinforcement at time concrete is placed is free of mud, oil or other materials that may affect or reduce bond.

2. Reinforcement with rust, mill scale or a combination of both will be accepted as being satisfactory without cleaning or brushing provided dimensions and weights including heights of deformations on a cleaned sample is not less than required by applicable ASTM Specification that governs for the rebar supplied.

3. Rebar support:

a. Uncoated rebar:

1) Support rebars and fasten together to prevent displacement by construction loads or placing of concrete.

a) Locate and support reinforcement with bar supports to maintain minimum concrete cover.

b) Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

2) On ground, provide supporting concrete blocks to support reinforcing steel.

3) Over formwork, provide plastic-coated metal chairs, runners, bolsters, spacers, hangers and other rebar support.

a) Only tips in contact with the forms need to be plastic coated.

b. Coated rebar:

1) Support coated rebars and fasten together to prevent displacement.

2) Use plastic or nylon ties to hold rebars rigidly in place.

3) Support rebars by use of plastic or plastic-coated chairs, runners, bolsters, spacers, hangers and rebar supports as required.

4. Support rebars over cardboard void forms by means of concrete supports which will not puncture or damage the void forms during construction nor impair the strength of the concrete members in any way.

5. Where parallel horizontal reinforcement in beams is indicated to be placed in two or more layers, rebars in the upper layers shall be placed directly above rebars in the bottom layer with clear distance between layers to be 1 inch.

   a. Place spacer rebars at 3 feet maximum centers to maintain the required 1 inch clear distance between layers.

6. Extend reinforcement to within 2 inches of concrete perimeter edges.

   a. If perimeter edge is formed by earth, extend reinforcement to within 3 inches of the edge.

7. To assure proper placement, furnish templates for all column/pier vertical bars and dowels.

8. Do not bend reinforcement after embedding in hardened concrete unless approved by Engineer.

   a. Do not bend reinforcing by means of heat.

9. Do not tack weld reinforcing.

10. Embed rebars into hardened concrete utilizing adhesive anchor system specifically manufactured for such installation:

    a. Drill hole in concrete with diameter and depth as required to develop 125 percent of the yield strength of the bar according to manufacturer's requirements.

    b. Clean holes per manufacturer's recommendations.

    c. Place adhesive in drilled hole.

d. Insert rebar into hole and adhesive in accordance with manufacturer's instructions.

3.02 FIELD QUALITY CONTROL

A. Reinforcement Congestion and Interferences:

1. Notify Engineer whenever the specified clearances between rebars cannot be met.

2. Do not place any concrete until the Engineer submits a solution to rebar congestion problem.

3. Rebars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items.

4. If rebars are moved more than one bar diameter, obtain Engineer's approval of resulting arrangement of rebars.

5. No cutting of rebars shall be done without written approval of Engineer.

B. Inspection of Epoxy-Coated Rebars:

1. Coated rebars will be inspected on the jobsite for handling defects, coating abrasion, coating thickness and continuity of coating.

2. Engineer may defer final inspection of rebar coating integrity and repairs until the rebars have been erected and all handling is completed.

3. Repair coated areas as directed by Engineer.

a. Do not place concrete until all repairs to coatings have been completed.

C. Patching of Epoxy-Coated Rebar:

1. Patching and repair to be performed in accordance with the instructions of patching material manufacturer.

2. Patching material to provide a minimum film thickness of 5 mils over the bare area.

a. Thickness of area adjacent to patched area not to exceed 15 mils.

3. Areas to be patched to be clean and free of surface contaminants.

    a. Treat areas in accordance with patching material manufacturer's instructions before oxidation occurs.

4. Total surface area covered by patching material not to exceed 2 percent of total surface area of the rebar.

5. Rebar welds and adjacent bare rebar areas to also be patched after welding is completed.

D. Employ a testing laboratory to perform and report following:

1. Review and approve Contractor proposed welding procedures and processes for conformance with AWS D1.4.

2. Qualify welders in accord with AWS D1.4.

3. Test three (3) samples of each bar size and each type of weld in accord with AWS D1.4.

    a. The tensile strength of each test shall be not less than 125 percent of the required yield strength of the rebar tested.

4. Conduct nondestructive field tests (radiographic or magnetic particle) on not less than one (1) random sample for each 10 welds.

    a. In addition, if any welds are found defective, test five (5) previous welds performed by same welder.

5. Visually inspect each weld for presence of cracks, undercuts, inadequate size and other visible defects.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Reinforcing Steel.

4.02 PAYMENT

A. Reinforcing Steel, constructed in accordance with the Signal Section of the Contract Documents shall be included in the lump sum contract price paid for that location's Signal Location Complete. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

B. Reinforcing Steel, constructed in accordance with the Civil Section of the Contract Documents shall be included in the lump sum contract price paid for that location's Signal Location Complete. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer

C. Full compensation for furnishing all tie wires, blocks, chairs and other supporting devices shall be considered as included in the contract Unit Price by the unit and no separate payment will be made therefore.

D. Full compensation for furnishing and testing sample splices, for radiographic examinations performed by the Contractor and for furnishing access facilities for inspection and non-destructive testing by the Engineer shall be considered as included in the Contract Unit Price by the unit and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 03 31 00
STRUCTURAL CONCRETE

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. The Work in this Section consists of cast in place concrete and grout.

1.02 RELATED SECTIONS

A. Section 03 21 00 – Reinforcing Steel

1.03 REFERENCES

A. American Railway Engineering and Maintenance of Way Association (AREMA)

1. Chapter 8 – Concrete Structures and Foundations

B. American Concrete Institute (ACI).

1. 116R, Cement and Concrete Terminology
2. 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
3. 212.3R, Chemical Admixtures for Concrete.
4. 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
5. 304.2R, Placing Concrete by Pumping Methods
6. 305R, Hot Weather Concreting
7. 306R, Cold Weather Concreting
8. 318, Building Code Requirements for Structural Concrete.
9. 347R Guide to Formwork for Concrete.

C. ASTM International (ASTM)

1. C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
2. C33, Standard Specification for Concrete Aggregates.
3. C39, Standard Test Method for Compressive Strength of Cylindrical Concrete

Specimens.

4. C94, Standard Specification for Ready-Mixed Concrete.

5. C138, Standard Method of Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.

6. C143, Standard Test Method for Slump of Hydraulic Cement Concrete.

7. C150, Standard Specification for Portland Cement

8. C157, Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete.

9. C172, Standard Practice for Sampling Freshly Mixed Concrete.

10. C173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

11. C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

12. C260, Standard Specification for Air-Entraining Admixtures for Concrete.

13. C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

14. C494, Standard Specification for Chemical Admixtures for Concrete.

15. C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

16. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

17. C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for use in Construction and Criteria for Testing Agency Evaluation.

18. C1240, Standard Specification for Use as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar, and Grout.

19. C1260, Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Mortar-Bar Method).

20. D994, Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).

21. D1056, Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.

22. D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

23. E329, Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.

D. Corps of Engineers (COE)

1. CRD-C621, Standard Specification for Packaged, Dry, Hydraulic-Cement Grout (Nonshrink).

E. Standard Plans for Public Works Construction (SSPWC) “Green Book”.

1.04 DEFINITIONS

A. Per ACI 116R, except as modified herein:

1. Concrete fill: Non-structural concrete.

2. Concrete Testing Agency: Testing agency employed to perform materials evaluation, design of concrete mixes or testing of concrete placed during construction.

3. Exposed concrete: Exposed to view after construction is complete.

4. Indicated: Indicated by Contract Documents.

5. Nonexposed concrete: Not exposed to view after construction is complete.

6. Required: Required by Contract Documents.

7. Specified strength: Specified compressive strength at 28 days.

8. Submitted: Submitted to Engineer

1.05 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Submit concrete mix designs proposed for use. Concrete mix design submittal to include the following information:

1. Location of use.
2. Plan sheets showing work
3. Target strength
4. Sieve analysis and source of fine and coarse aggregates.
5. Test for aggregate organic impurities.
6. Test for deleterious aggregate per ASTM C289.
7. Proportioning of all materials.
8. Type of cement with mill certificate for cement.
9. Type of fly ash with certificate of conformance to Specification requirements.
10. Slump
11. Air content
12. Brand, type, ACI or ASTM designation, and quantity of each admixture proposed for use.
13. 28-day cylinder compressive test results of trial mixes per ACI 318 and as indicated herein.
14. Shrinkage test results
15. Standard deviation value for concrete production facility.

C. Submit product technical data including:

1. Acknowledgement that products submitted meet requirements of standards referenced.
2. Manufacturer's installation instructions.
3. Manufacturers and types:
    a. Joint fillers
    b. Curing agents
    c. Bonding and patching mortar.

d. Construction joint bonding adhesive

e. Non-shrink grout with cure/seal compound.

f. Color if used and type.

1.06 QUALITY ASSURANCE

A. Quality Assurance

1. Concrete testing agency:

a. Contractor must employ at its own expense the services of a testing laboratory to:

1) Perform materials evaluation.

2) Design concrete mixes.

b. Concrete testing agency to meet requirements of ASTM E329.

2. Do not begin concrete production until proposed concrete mix design has been approved by Engineer.

a. Approval of concrete mix design by Engineer does not relieve Contractor of his responsibility to provide concrete that meets the requirements of this Specification.

3. Adjust concrete mix designs when material characteristics, job conditions, weather, strength test results or other circumstances warrant.

a. Do not use revised concrete mixes until submitted to and approved by Engineer.

4. Perform structural calculations as required to prove that all portions of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its own weight plus the loads placed thereon.

B. Qualifications:

1. Ready mixed concrete batch plant certified by National Ready Mixed Concrete Association (NRMCA).

2. Formwork, shoring and reshoring for slabs and beams except where cast on ground to be designed by a professional engineer currently registered in the state where the Project is located.

1.07 DELIVERY, STORAGE AND HANDLING

A. Storage of Material:

1. Cement and fly ash

a. Store in moisture-proof, weather-tight enclosures.

b. Do not use if caked or lumpy.

2. Aggregate

a. Store to prevent segregation and contamination with other sizes or foreign materials.

b. Obtain samples for testing from aggregates at point of batching.

c. Do not use frozen or partially frozen aggregates.

d. Do not use bottom 6 inches of stockpiles in contact with ground.

e. Allow sand to drain until moisture content is uniform prior to use.

3. Admixtures

a. Protect from contamination, evaporation, freezing, or damage.

b. Maintain within temperature range recommended by manufacturer.

c. Completely mix solutions and suspensions prior to use.

4. Reinforcing steel: Support and store all rebars above ground.

B. Delivery

1. Concrete

a. Prepare a delivery ticket for each load for ready-mixed concrete.

b. Truck operator shall hand ticket to Engineer at the time of delivery.

c. Ticket to show:

1) Mix identification mark.

2) Quantity delivered.

3) Amount of each material in batch.

4) Outdoor temp in the shade.

5) Time at which cement was added.

6) Numerical sequence of the delivery.

7) Amount of water added.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following products and manufacturers are acceptable, or approved equivalent as a comparable product:

1. Nonshrink, nonmetallic grout
   a. Sika "SikaGrout 212."
   b. Euclid Chemial "NS Grout."
   c. Master Builders Solutions. "Masterflow 713”.
2. Epoxy grout
   a. BASF Admixtures, Inc. "Brutem MPG."
   b. Euclid Chemical Company, "E3-G."
   c. Fosroc, "Conbextra HF
3. Expansion joint fillers
   a. Rubatex Corp.
   b. Williams Products, Inc
4. Form coating
   a. Richmond "Rich Cote."
   b. Industrial Lubricants "Nox-Crete Form Coating."
   c. Euclid Chemical "Eucoslip VOX”.
5. Prefabricated forms
   a. Simplex "Industrial Steel Frame Forms."

b. Symons "Steel Ply."

c. Universal "Uniform”.

6. Bonding Agent
   a. Euclid Chemical Co.
   b. Master Builders Solutions Admixtures US LLC
   c. L & M Construction Chemicals Inc.
7. Calcium Nitrate
   a. gcp Applied Technologies
      1) DCI
      2) DCI’s
   b. Euclid Chemical Company
      1) Eucon BCN
      2) Eucon CIA
8. Microsilica (Silica Fume)
   a. Gcp applied technologies “Force 10,000 D”.
   b. Euclid Chemical Company "Eucon MSA".

2.02 MATERIALS

A. Portland Cement: Conform to ASTM C150 Type II, III or V.

B. Fly Ash
   1. ASTM C618, Class F or Class C
   2. Non-Staining
   3. Hardened concrete containing fly ash to be uniform light gray color.
   4. Maximum loss on ignition: 4 percent
   5. Compatible with other concrete ingredients

6. Obtain proposed fly ash from a source approved by the State Highway Department in the State of California for use in concrete for bridges. A list of pre-approved products may be obtained from the following website: http://www.dot.ca.gov/hq/esc/approved_products_list/

C. Admixtures

1. Air entraining admixtures: ASTM C260

2. Water reducing, retarding, and accelerating admixtures

a. ASTM C494 Type A through E

b. Conform to provisions of ACI 212.3R.

c. Do not use retarding or accelerating admixtures unless specifically approved in writing by Engineer and at no cost to MTS.

d. Follow manufacturer's instructions.

e. Use chloride free admixtures only.

3. Maximum total water soluble chloride ion content contributed from all ingredients of concrete including water, aggregates, cementitious materials and admixtures by weight percent of cement: 0.10 all concrete.

4. Do not use calcium chloride.

5. Pozzolanic admixtures: ASTM C618.

6. Calcium nitrate: ASTM C494 Type C.

7. Microsilica: ASTM C1240.

8. Provide admixtures of same type, manufacturer and quantity as used in establishing required concrete proportions in the mix design.

D. Water: Potable, clean, free of oils, acids and organic matter.

E. Aggregates

1. Normal weight concrete: ASTM C33, except as modified below.

2. Fine aggregate

a. Clean natural sand

b. No manufactured or artificial sand.

3. Coarse aggregate

   a. Crushed rock, natural gravel, or other inert granular material.

   b. Maximum amount of clay or shale particles: 1 percent

4. Gradation of coarse aggregate

   a. Lean concrete and concrete topping: Size #7 or #8.

   b. All other concrete: Size #57 or #67.

F. Concrete Grout

1. Nonshrink nonmetallic grout

   a. Nonmetallic, noncorrosive, nonstaining, premixed with only water to be added.

   b. Grout to produce a positive but controlled expansion.

   c. Mass expansion not to be created by gas liberation.

   d. Minimum compressive strength of non-shrink grout at 28 days: 6500 psi.

   e. In accordance with COE CRD-C621.

2. Epoxy Grout

   a. 3-component epoxy resin system

      1) Two liquid epoxy components

      2) One inert aggregate filler component

   b. Each component packaged separately for mixing at jobsite

   c. Minimum compressive strength of epoxy grout shall be as specified in the Plans.

G. Forms

1. Prefabricated or job built

2. Wood forms

   a. New 5/8 or 3/4 inches 5-ply structural plywood of concrete form grade

   b. Built-in-place or prefabricated type panel

c. 4 feet by 8 feet sheets for built-in-place type except where smaller pieces will cover entire area.

d. When approved, plywood may be reused.

3. Metal Forms

a. Metal forms excluding aluminum may be used.

b. Forms to be tight to prevent leakage, free of rust and straight without dents to provide members of uniform thickness.

4. Chamfer strips: Clear white pine, surface against concrete planed.

5. Form ties

a. Removable end, permanently embedded body type with cones on outer ends not requiring auxiliary spreaders.

b. Cone diameter: 3/4 inches minimum to 1 inch maximum.

c. Embedded portion 1-1/2 inches minimum back from concrete face.

d. If not provided with threaded ends, constructed for breaking off ends without damage to concrete.

e. Provide ties with built-in waterstops at all walls that will be in contact with process liquid during plant operation.

6. Form release: Nonstaining and shall not prevent bonding of future finishes to concrete surface.

H. Membrane Curing Compound

1. ASTM C309, Type I-D

2. Resin based, dissipates upon exposure to UV light

3. Curing compound shall not prevent bonding of any future coverings, coatings or finishes

4. Curing compounds used in water treatment plant construction to be nontoxic and taste and odor free

I. Bonding Agent

1. High solids acrylic latex base liquid for interior or exterior application as a bonding agent to improve adhesion and mechanical properties of concrete patching mortars.

2. Euclid Chemical Co. "Flex-Con”.

3. L & M Construction Chemicals "Everbond”.

4. Master Builders Solutions “MasterEmaco A660”

J. Expansion Joint Filler

1. In contact with water or sewage:

a. Closed cell neoprene

b. ASTM D1056, Class SC (oil resistant and medium swell) of 2 to 5 psi compression deflection (Grade SCE41).

2. Exterior walking surfaces

a. Asphalt expansion joint filler

b. ASTM D994

3. Other use

a. Fiber expansion joint filler

b. ASTM D1751

K. Bead Board

1. The bead board panels shall be a minimum of two (2) inch thick, four (4) feet wide, and 8 feet long and shall meet the requirements of ASTM C578.

2. Bead board coat: A suitable and compatible bonding material for permanently adhering.

2.03 CONCRETE MIXES

A. General

1. All concrete to be ready mixed concrete conforming to ASTM C94.

2. Provide concrete of specified quality capable of being placed without segregation and, when cured, of developing all properties required.

3. All concrete to be normal weight concrete.

B. Strength

1. Provide specified strength and type of concrete for each use in structure(s) as follows:

Type of Construction	Concrete Class*	Maximum Slump (Inches)
Street Surface Improvements		
Concrete Pavement (not integral with curb)	565-C-3250	4”
Curb, Integral Curb and Pavement, Gutter, Walk, Alley Aprons, Extruded Curb & Gutter	565-C-3250	4”
Sewer and Storm Drainage Facilities		
Pipe Collars, Beam Support for Pipe, Pre-Cast Manhole Components, Catch Basins, Sidewalk Culverts	565-C-3250	4”
Pipe Bedding and Encasement, Anchors and Thrust Blocks, Wall Support for Pipe	520-C-2500	4”
Tunnel and Trench Backfill	520-C-2500	4”
Reinforced Structures		
Bridges, Buildings, Retaining Walls	650-CW-4000	4”
Cast-In-Place Piles	650-CW-4000	4”
Channel and Boxes	650-CW-4000	4”
Walls and Deck	650-CW-4000	4”
Miscellaneous		
Street Light and Traffic Signal Foundations, Survey Monuments	565-C-3250	4”
Fence and Guard Post Foundations	565-C-3250	4”
Coarse Masonry Grout	610-E-2000G	10”

*Refer to SSPWC Section 201 for designation

C. Air Entrainment

1. Provide air entrainment in all concrete resulting in a total air content percent by volume as follows:

MAX AGGREGATE SIZE	TOTAL AIR CONTENT PERCENT
1 inch or 3/4 inches	5 to 7

2. Air content to be measured in accordance with ASTM C231, ASTM C173, or ASTM C138.

D. Slump - 4 inches maximum, 1 inch minimum

1. Measured at point of discharge of the concrete into the concrete construction member.

2. Concrete of lower than minimum slump may be used provided it can be properly placed and consolidated.

3. Pumped concrete

a. Provide additional water at batch plant to allow for slump loss due to pumping.

b. Provide only enough additional water so that slump of concrete at discharge end of pump hose does not exceed maximum slump specified above.

4. Determine slump per ASTM C143.

E. Selection of Proportions

1. General

a. Proportion ingredients to

1) Produce proper workability, durability, strength, and other required properties.

2) Prevent segregation and collection of excessive free water on surface.

2. Minimum cement contents and maximum water cement ratios for concrete to be as follows:

SPECIFIED STRENGTH	MINIMUM CEMENT, LB/CY MAXIMUM AGGREGATE SIZE 1/2"	3/4"	1"	MAXIMUM WATER CEMENT RATIO BY WEIGHT
4000	650	650	650	0.45

3. Substitution of fly ash: Maximum of 25 percent by weight of cement at rate of 1 lb fly ash for 1 lb of cement.
4. Sand cement grout

a. Three parts sand.

b. One part Portland cement.

c. Entrained air: Six percent plus or minus one percent air.

d. Sufficient water for required workability.

e. Minimum 28-day compressive strength: 3,000 psi.

5. Normal weight concrete

a. Proportion mixture to provide desired characteristics using one of methods described below:

1) Method 1 (Trial Mix): Per ACI 318, Chapter 5, except as modified herein.

a) Air content within range specified above

b) Record and report temperature of trial mixes

c) Proportion trial mixes per ACI 211.1

2) Method 2 (Field Experience): Per ACI 318, Chapter 5, except as modified herein:

a) Field test records must be acceptable to Engineer to use this method.

b) Test records shall represent materials, proportions and conditions similar to those specified.

6. Required average strength to exceed the specified 28-day compressive strength by the amount determined or calculated in accordance with the requirements of Paragraph 5.3 of ACI 318 using the standard deviation of the proposed concrete production facility as described in Paragraph 5.3.1 of ACI 318.

F. Allowable Shrinkage: 0.048 percent per ASTM C157.

G. For Brackish or Saltwater Locations

1. Calcium nitrate shall be added at a quantity of 5 gal per cubic yard.

a. Calcium nitrite solution shall contain 30 percent solids and shall provide 15 lbs. per cubic yard chloride protection.

b. Mix shall also include 7 percent, by weight of cement microsilica.

2. Proposed admixture alternates must be approved by the Engineer prior to their use.

a. Any proposed substitution shall include:

1) Documentation as to the corrosion protection mechanism.

2) Test data documenting the stated level of protection offered.

3) Documentation that the proposed alternate meets a service life of 100 years as calculated using Fick's Second Law of Physics.

b. All models shall use a reference diffusion coefficient of 2.81.

3. The Contractor may perform trial mixes prior to the delivery in order to adjust the desired air content, set time, and slump

PART 3 – EXECUTION

3.01 FORMING AND PLACING CONCRETE

A. Formwork

1. Contractor is responsible for design and erection of formwork.

2. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation, and position.

a. Allowable tolerances: As recommended in ACI 347R.

3. Chamfer strips: Place ¾" chamfer strips in forms to produce ¾" wide beveled edges on permanently exposed corners of members.

4. Clean and adjust forms prior to concrete placement.

5. Tighten forms to prevent mortar leakage.

6. Coat form surfaces with form release agents prior to placing reinforcing bars in forms.

B. Construction, Expansion, and Contraction Joints

1. Provide at locations indicated.

2. Locate construction joints in beams and girders as shown in the Plans.

3. Install construction joints perpendicular to main reinforcement with all reinforcement continued across construction joints.

4. At least 48 hours shall elapse between placing of adjoining concrete construction.
5. Thoroughly clean and remove all laitance and loose and foreign particles from construction joints.

6. Before new concrete is placed, existing concrete surfaces must be roughened to ¼" amplitude and coat all construction joints with an approved bonding adhesive used and applied in accordance with manufacturer's instructions.

C. Embedments

1. Set and build in anchorage devices and other embedded items required for other work that is attached to, or supported by, concrete.

2. Use setting diagrams, templates, and instructions for locating and setting.

3. Secure waterstops in correct position using hog rings or grommets spaced along the length of the waterstop and wire tie to adjacent reinforcing steel.

D. Placing Concrete

1. Place concrete in compliance with ACI 304R and ACI 304.2R.

2. Place in a continuous operation within planned joints or sections.

3. Begin placement when work of other trades affecting concrete is completed.

4. Place concrete by methods which prevent aggregate segregation.

5. Do not allow concrete to free fall more than 4 feet.

6. Where free fall of concrete will exceed 4 feet, place concrete by means of tremie pipe or chute.

E. Consolidation: Consolidate all concrete using mechanical vibrators supplemented with hand rodding and tamping, so that concrete is worked around reinforcement and embedded items into all parts of forms.

F. Protection

1. Protect concrete from physical damage or reduced strength due to weather extremes.

2. In cold weather comply with ACI 306R except as modified herein.

a. Do not place concrete on frozen ground or in contact with forms or reinforcing bars coated with frost, ice, or snow.

b. Minimum concrete temperature at the time of mixing:

OUTDOOR TEMPERATURE AT PLACEMENT (IN SHADE)	CONCRETE TEMPERATURE AT MIXING
Below 30˚ F	70˚ F
Between 30˚-45˚ F	60˚ F

Above 45˚ F	50˚ F

c. Do not place heated concrete that is warmer than 80° F.

d. If freezing temperatures are expected during curing, maintain the concrete temperature at or above 50˚ F for 7 days or 70˚ F for 3 days.

e. Do not allow concrete to cool suddenly.

3. In hot weather comply with ACI 305R except as modified herein.

a. At air temperature of 90˚ F and above, keep concrete as cool as possible during placement and curing.

b. Do not allow concrete temperature to exceed 90˚ F at placement.

c. Prevent plastic shrinkage cracking due to rapid evaporation of moisture.

d. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 lbs/sf/hr as determined from ACI 305R, Figure 2.1.5

G. Curing

1. Begin curing concrete as soon as free water has disappeared from exposed surfaces.

2. Cure concrete by use of moisture retaining cover, burlap kept continuously wet or by membrane curing compound.

3. Provide protection as required to prevent damage to concrete and to prevent moisture loss from concrete during curing period.

4. Provide curing for minimum of 7 days.

5. Form materials left in place may be considered as curing materials for surfaces in contact with the form materials except in periods of hot weather.

6. In hot weather follow curing procedures outlined in ACI 305R.

7. In cold weather follow curing procedures outlined in ACI 306R.

8. If forms are removed before 7 days have elapsed, finish curing of formed surfaces by one of above methods for the remainder of the curing period.

9. Curing vertical surfaces with a curing compound

a. Cover vertical surfaces with a minimum of two coats of the curing compound.

b. Allow the preceding coat to completely dry prior to applying the next coat.

c. Apply the first coat of curing compound immediately after form removal.

d. Vertical surface at the time of receiving the first coat shall be damp with no free water on the surface.

e. A vertical surface is defined as any surface steeper than 1 vertical to 4 horizontal.

H. Form Removal

1. Remove forms after concrete has hardened sufficiently to resist damage from removal operations or lack of support but no sooner than 3 days after placement of concrete.

3.02 CONCRETE FINISHES

A. Surfaces Exposed to View

1. Provide a smooth finish for exposed concrete surfaces.

2. Remove fins and projections, and patch voids, air pockets, and honeycomb areas with cement grout.

3. Fill tie holes with nonshrink nonmetallic grout.

B. Surfaces Not Exposed to View

1. Patch voids, air pockets and honeycomb areas with cement grout.

2. Fill tie holes with nonshrink nonmetallic grout.

C. Troweled Finish

1. Float finish surface.

D. Broom Finish: Immediately after concrete has received a float finish as specified, give it a transverse scored texture by drawing a broom across surface.

3.03 GROUT

A. Preparation

1. Nonshrinking nonmetallic grout.
    a. Clean concrete surface to receive grout.
    b. Saturate concrete with water for 24 hours prior to grouting.
2. Epoxy grout: Apply only to clean, dry, roughened, sound surface.

B. Application

1. Nonshrinking nonmetallic grout.
    a. Mix in a mechanical mixer.
    b. Use no more water than necessary to produce flowable grout.
    c. Place in accordance with manufacturer's instructions.
    d. Completely fill all spaces and cavities below the bottom of baseplates.
    e. Provide forms where baseplates and bedplates do not confine grout.
    f. Where exposed to view, finish grout edges smooth.
    g. Except where a slope is indicated on Plans, finish edges flush at the baseplate, bedplate, member, or piece of equipment.
    h. Protect against rapid moisture loss by covering with wet rags or polyethylene sheets.
    i. Wet cure grout for seven (7) days, minimum.
2. Epoxy grout
    a. Mix and place in accordance with manufacturer's instructions.
    b. Completely fill all cavities and spaces around dowels and anchors without voids.
    c. Obtain manufacturer's field technical assistance as required to ensure proper placement.

3.04 FIELD QUALITY CONTROL

A. MTS will select a concrete testing agency that meets ASTM C1077-12 criteria and requirements. MTS will pay for services of a concrete testing agency to perform testing of concrete placed during construction. Contractor to cooperate with MTS in obtaining and testing samples.

B. Tests During Construction

1. Strength test – procedure
    a. Three cylinders, 6 inches diameter x 12 inches high, will be taken from each sample per ASTM C172 and ASTM C31.
    b. Cylinders will be tested per ASTM C39
        1) One at 7 days
        2) Two at 28 days
2. Strength test – frequency
    a. Not less than one test each day concrete placed.
    b. Not less than one test for each 50 cy or major fraction thereof placed in one day.
    c. Not less than one test for each type of concrete poured.
    d. Not less than one test for each concrete structure exceeding 2 cy volume.
3. Slump test
    a. Per ASTM C143.
    b. Determined for each strength test sample.
    c. Additional slump tests may be taken.
4. Air content
    a. Per ASTM C231, ASTM C173, and ASTM C138.
    b. Determined for each strength test sample.
5. Temperature: Determined for each strength test sample.

C. Evaluation of Tests

1. Strength test results

    a. Average of 28-day strength of two cylinders from each sample.

        1) If one cylinder manifests evidence of improper sampling, molding, handling, curing or testings, strength of remaining cylinder will be the test result.

        2) If both cylinders show any of above defects, test will be discarded.

D. Acceptance of concrete

1. Strength level of each type of concrete shall be considered satisfactory if both of the following requirements are met:

    a. Average of all sets of three consecutive strength tests equals or exceeds the required specified 28-day compressive strength.

    b. No individual strength test falls below the required specified 28-day compressive strength by more than 500 psi.

2. If tests fail to indicate satisfactory strength level, perform additional tests and/or corrective measures as directed by Engineer.

    a. Perform additional tests and corrective measures at no additional cost to MTS.

3.05 SCHEDULES

A. Form Types

1. Surfaces exposed to view

    a. Prefabricated or job-built wood forms.

    b. Laid out in a regular and uniform pattern with long dimensions vertical and joints aligned.

    c. Produce finished surfaces free from offsets, ridges, waves, and concave or convex areas.

    d. Construct forms sufficiently tight to prevent leakage of mortar.

2. Surfaces normally submerged or not normally exposed to view: Wood or steel forms sufficiently tight to prevent leakage of mortar.

3. Other types of forms may be used:

    a. For surfaces not restricted to plywood or lined forms.

b. As backing for form lining.

B. Grout

1. Nonshrinking nonmetallic grout: General use.

2. Epoxy grout:

a. Grouting of dowels and anchor bolts into existing concrete.

b. Other uses indicated on Plans.

C. Concrete finishes

1. Unformed surfaces

a. Use following finishes as applicable, unless otherwise indicated.

1) Troweled finish: All unformed surfaces.

2) Broom finish: All walking surfaces.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Concrete Structures will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

B. Precast Concrete Members will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

C. Concrete Pavement will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

D. Concrete in structures will be measured by the neat line dimensions shown on the Plans or such other dimensions as may be ordered by the Engineer. No deduction will be made for the volume occupied by bar reinforcing steel or other embedded steel items.

E. Precast Concrete Members will be measured by the various types and lengths shown in Contract Documents and for erecting the members as shown in the Contract Documents.

F. Concrete Pavement area to be paid for will be calculated on the basis of the dimensions shown on the Plans adjusted by the amount of any change ordered by the Engineer. No allowance will be made for concrete pavement placed outside those dimensions unless otherwise ordered by the Engineer.

G. Coordination for Concrete and Concrete Aggregate Testing for field quality control conducted by the testing agency selected by MTS is considered incidental to work under other payment items under this Section and no separate measurement and payment will be made to the Contractor.

4.02 PAYMENT

A. Concrete Structures furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

B. Precast Concrete Members furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Schedule of Quantities and Prices. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

C. Concrete Pavement furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

D. The Contract Unit Price for concrete structures shall include full compensation for all work involved in constructing the concrete work, complete-in-place, as shown on the Plans, as specified in these Specifications and as directed by the Engineer.

E. The Contract Unit Price for concrete structures shall include full compensation for all forming and shoring, joints, joint filler, joint seals and waterstops necessary for constructing the concrete work complete-in-place.

F. The Contract Unit Price for concrete in reinforced concrete box and culverts, and in headwalls, endwalls, and wingwalls for culverts shall also include the payment for the earthwork involved with such structures.

G. The Contract Unit Price paid for furnishing precast concrete members shall include full compensation for including reinforcing and prestressing steel as required, and for doing all work involved in constructing and furnishing precast members at the site of the work complete and ready for erection, as shown on Plans, and as specified in these Specifications, and as directed by the Engineer.

H. Concrete pavement shall be constructed in accordance with the thickness requirements of the Plans and Specifications. Tolerances allowed for subgrade construction and other provisions of these Specifications which may affect the thickness shall not be construed to modify those thickness requirements.

I. All holes remaining in the concrete pavement after the thickness measurements, if required, shall be completely filled by the Contractor, at the Contractor's expense.

J. No additional compensation will be allowed the Contractor for any pavement constructed in excess of the thickness requirements of the Plans and Specifications.

K. Support for Concrete and Concrete Aggregate Testing shall include furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

SECTION 05 52 00
HANDRAILS AND RAILINGS

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This Section addresses the products, materials and work for the installation of metal hand railing, stainless steel hand railing, Right-of-Way (ROW) Security Gates, and pedestrian barricade as shown on the Contract Plans and as specified in these Specifications, and as directed by the Engineer.

1.02 RELATED SECTIONS

A. Section 09 90 00 – Painting and Coating

1.03 REFERENCES

A. SSPWC: Standard Specifications for Public Works Construction Current or Latest Edition

B. AWS D1.1, Structural Welding Code- Steel

C. American Iron and Steel Institute: Type 302 and 304 Steel

D. American National Standards Institute (ANSI) ANSI A12.1 Safety Requirements for Floor and Wall Openings, Railings and Toeboards

E. American Society for Testing and Materials (ASTM)

1. A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

2. D4956 Standard Specifications for Retroreflective Sheeting for Traffic Control

F. FF-S-92B: Federal Specification Screw, Machine, Slotted, Cross Recessed or Hexagon Head

G. State of California, Department of Industrial Relations, Division of Occupational Safety and Health (CAL/OSHA): As applicable to railing

H. Use finishes for stainless steel complying with “Metal Finishes Manual” by NAAMM.

I. The sheet Work, except as otherwise indicated or specified, shall comply with “Architectural Sheet Metal Specifications” and “Architectural Sheet Metal Manual” by SMACNA.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Submit Shop Drawings In accordance with the Contract Plans, showing the details and dimensions of all removable metal hand railing and metal hand railings, sleeve post, and posts and fences. Note dimensions which have been field verified.

C. Submit welding procedures and welder qualifications and welder registration as required by the American Welding Society.

1. Manufacturer's product data for non-shrink, non-ferrous cement grout.

D. Shop Drawings showing layout, locations, Sections, elevations, details, dimensions, finishes and installation details.

E. Submit certified test reports, as required

1.05 QUALITY ASSURANCE

A. All uncoated spots or damaged coating shall be repaired by hot-dip process. Small areas as determined by the Engineer may be repaired by recoating them with “Galvicon” or “Gavalloy” or approved equivalent.

B. Perform welding in accordance with AWS D1.1.

C. Set handrails and posts true to location, alignment and grade as indicated in the Contract Plans. The railings shall present a smooth, uniform appearance in their final positions.

D. Painting of Rails: In accordance with Section 09 90 00, Painting and Coating, unless otherwise directed by the Engineer.

PART 2 – PRODUCTS

2.01 STEEL PIPES

A. Pipe for post, sleeve post, rail and pickets shall be seamless steel pipe, conforming to ASTM A53, Type S, Grade A

2.02 GENERAL

A. Metal Surfaces

1. For the fabrication of Work which will be exposed to view, use materials which are smooth and free of surface blemishes. Do not use materials which have stains and discolorations, including welds which do not match the materials in color and grain characteristics.

B. Surface Flatness and Edges

1. For exposed Work provide materials which have been cold-rolled, cold-finished, cold-drawn, extruded, stretcher leveled, machine cut or otherwise produced to the highest commercial standard for flatness with edges and corners sharp and true to angle or curvature as required.

2.03 STAINLESS STEEL

A. Use AISI Type 302 or Type 304 (at fabricator's option), except as otherwise indicated. Comply with the following general standards, with specific type, alloy, heat treatment and finish as required to produce the specific Work. Finish products to a No. 4 directional satin unless otherwise shown or specified. Protect with adhesive paper covering.

1. Sheet – ASTM A167, ASTM A480, and AISI Type 302 or 304

2. Plate – ASTM A167

3. Bar Stock – ASTM A276

4. Tubing – ASTM A269

5. Castings – ASTM A296, iron chromium, nickel

6. Extruded Shapes – Manufacturer's standards

2.04 FASTENERS AND ANCHORAGE MATERIALS

A. Welding Electrodes and Filler Metal

1. Provide the alloy and type required for strength, workability, compatibility, and color match after grinding smooth and finishing the fabricated product.

B. Fasteners

1. Some basic metal or alloy as the metal fastened, and finished to match in color and texture. Comply with FS FF-S-92 for machine screws. Provide the type of fasteners indicated and provide Phillips flat-head screws for exposed fasteners.

C. Anchors and Inserts

1. Either furnish inserts to be set in concrete and masonry Work, or provide other anchoring devices as required for the installation of stainless steel Work. Furnish stainless steel or epoxy-coated inserts (See Concrete and Masonry Sections for installation); provide toothed stainless steel expansion bolt devices for drilled-in-place anchors.

2.05 FABRICATION – GENERAL

A. Fabricate from the thicknesses, sizes and shapes indicated, or if not indicated, as required to produce Work of adequate strength and durability, without objectionable deflections or "oil canning".

B. Form exposed Work true to line and level, with flush surfaces and accurate angles. Ease exposed edges to a 1/32-inch radius, unless otherwise indicated. Miter exposed corner joints and machine fit to a hairline joint.

C. Weld corners and seams continuously, grind smooth and flush on exposed surfaces. For exposed metal finishes, use metals which will blend and match with sheet metals being joined; discolorations or stains will not be acceptable for exposed portions of natural finish metals. Comply with recommendations of AWS for welding.

D. Provide brackets, plates and straps with each assembly, as may be required for proper support and anchorage to other Work.

E. Cut, reinforce, drill and tap Work as may be required to receive finish hardware and similar items of Work.

F. Preassemble Work at shop to the greatest extent possible, so as to minimize mechanical joints, splicing and assembly of units at the site

2.06 RAILINGS AND HANDRAILS

A. Comply with ANSI A12.1 and CAL OSHA requirements for railings around floor openings and exposed edges of floors, stairs, ramps, and similar locations. Install railings and supports able to withstand a horizontal force of 150 pounds per linear foot and vertical force of 100 pounds per linear foot at the top or 50 pounds per foot along the top rail, whichever is greater.

B. In tubular members, where mechanical joints are necessary, use bar stock inserts with flat-head screws located on the least visible surfaces. Where bends are shown, form members to a smooth, uniform radius without distortion of the crosssectional shape.

C. Miter and cope members at corners and intersections. Bevel, weld and grind smooth, without fillets, to form smooth transitions and maintain sharp lines.

D. Post-mounted railings – Use base plates as indicated.

E. Provide dissimilar metals isolation pads where required.

F. Comply with ASTM D4956 Standard Specifications for Retroreflective Sheeting for Traffic Control for yellow sheeting on railing.

PART 3 – EXECUTION

3.01 FABRICATION

A. Fabrication of metal hand railings and fencing shall be in accordance with SSPWC Current Version Sub-Section 304-2.1.2

3.02 INSTALLATION

A. Set stainless steel Work accurately as measured from established building lines and levels, plumb and in true alignment with previously completed Work. Temporarily brace or anchor securely in formwork where Work is to be built into concrete, masonry or similar construction.

B. Securely anchor in place using concealed anchorage wherever possible.

C. Accurately fit mechanical joints together to form tight joints and uniform reveals and shapes for joint fillers and sealants. Restore finishes that have been damaged by shipment and installation.

D. Do not cut or abrade finishes which cannot be completely restored in the field. Return units with such finishes to the shop for required alterations, followed by complete refinishing.

E. Remove protective coverings when there is no longer danger of damage to the stainless steel Work from other Work yet to be performed. Restore protective coverings which have been removed or damaged during shipment or installation of the Work, if other Work is yet to be performed.

F. Form bends and simple and compound curves in tubing by bending members in jigs to produce uniform curvature, maintain profile of member throughout bend without buckling, twisting or otherwise deforming exposed surfaces of handrail and railing components.

G. Railing splices performed in field - Use epoxy structural adhesive or other equivalent means standard with railing manufacturer. Field welding - Not permitted. Railing splices - Butted to flush hairline joint and reinforced using manufacturer's standard concealed fittings with concealed fasteners. Lay out Work to position splices in inconspicuous locations.

H. Provide weep holes or other means for evacuation of entrapped water in hollow Sections of railing members.

I. Provide wall returns at ends of wall mounted handrails, except where otherwise indicated.

J. Close exposed ends of handrail and tubular rail members by use of plates welded and ground smooth.

K. Furnish inserts and other anchorage devices for connecting handrails and railings to concrete or masonry Work. Fabricate and space anchorage devices as indicated and as required providing adequate support. Coordinate anchorage devices with supporting structure.

L. The galvanized bolt thread for removable metal hand railing shall not be deformed after installation.

M. Removal of Existing Pavement

1. Remove the existing pavement by core drilling pavement to the full depth of the existing pavement thickness in clean, straight lines with neat edges. Haul all removed material off the work site daily and dispose of in a legal manner.

N. Excavation

1. Remove material to the width and depth required for construction of the pedestrian gate foundation. Take care not to disturb the bottom of the excavation before the concrete for the foundation is placed. Replace excavation below the required grade or more than the required width with the same class of concrete specified for the foundation, at no additional cost to MTS.

O. Foundation and Installation of Gate Posts

1. Inspection required before placing concrete

a. Do not deposit concrete until the excavation, placing of the reinforcing steel, and placing of the gate posts has been inspected and approved. Provide at least one working day's advance notice that the excavation is ready for inspection and the procedure is approved for installation of the gates.

2. Concrete

a. Class 520-C-3250 - Portland Cement Concrete shall be used for the foundation.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Railings, Hand Railing, and ROW Security Gates will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Railings, Hand Railing, and ROW security Gates will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

B. Full compensation for furnishing and placing concrete footings, and connecting new railing to structures and existing cross railing shall be considered as incidental to the related items of work as listed on the Bid Price Form and no separate payment will be made.

END OF SECTION

SECTION 09 61 50
DETECTABLE WARNING PANELS

PART 1 - GENERAL

1.01 SUMMARY OR WORK

A. This section includes specifications for Detectable Warning Panels for grade crossings as shown in the Contract Drawings.

1.02 REFERENCES

A. ASTM International

1. B117 Practice for Operating Salt Spray (Fog) Apparatus
2. C501 Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser
3. C1028 Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
4. D570 Test Method for Water Absorption of Plastics
5. D638 Test Method for Tensile Properties of Plastics
6. D695 Test Method for Compressive Properties of Rigid Plastics
7. D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
8. D1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems
9. D5420 Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)
10. G155 Practice for Operating Xenon Arc Light Apparatus for Exposure of Materials

B. Americans with Disabilities Act (ADA) Standards issued by U.S. Department of Transportation

C. California Building Code

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Shop Drawings

1. Submit Shop Drawings showing fabrication details, panel surface profile, fastener locations, plans of panel placement including joints, and material to be used as well as outlining installation materials and procedure. Include procedures for containment and disposal of milling and saw cutting waste water.

C. Product Data

1. Submit manufacturer's literature describing products and installation procedures. Include product data for adhesives and sealants.

D. Samples

1. Submit the following samples.

a. Samples of panels measuring at least 12 inches x 12 inches. Panel sample shall include longitudinal edge with integral flange and transverse ship-lap edges.

b. Samples of panels and sealant for verification of color match.

E. Samples for Verification Purposes

1. Submit panels of the kind proposed for use.

F. Maintenance Instructions

1. Submit manufacturer's specified maintenance practices for each type of panel and accessory as required.

G. Quality Assurance Submittals

1. Material Test Reports: Submit test reports from qualified independent testing laboratory indicating that materials proposed for use follow requirements and meet the properties indicated in this Specification. Tests which indicate performance for the panels shall have been performed within three (3) years of the Invitation for Bid.

2. Submit list of projects in California that successfully demonstrate the proposed products' durability and weatherability.

1.04 QUALITY ASSURANCE

A. Panels and accessories, including panel adhesive, fasteners, and sealants, shall be from a single source. Products shall have been in successful service for a period of five (5) years.

B. Installer's Qualifications

1. Engage an experienced Installer certified in writing by panel manufacturer

as qualified for installation, who has successfully completed panel installations similar in material, design, and extent to that indicated for Work. Only persons who are thoroughly trained and experience in the installation of the panels shall perform the Work.

1.05 DELIVERY, STORAGE AND HANDLING

A. Panel type shall be identified by part number on packages.

1.06 SITE CONDITIONS

A. Environmental Conditions and Protection

1. Conduct field operations only when environmental conditions fall within those recommended by manufacturers of the products.

1.07 WARRANTY

A. Panels shall be covered by a written warranty for a period of five (5) years from date of final completion. The warranty includes defective work, breakage, deformation, delamination, fading and chalking of finishes, and loosening of panels. Warranty shall include furnishing new materials, removal of existing panels, and installation of new panels.

1.08 SPARES

A. Furnish a minimum of five (5) percent additional panels of the total amount installed of each panel and corresponding fasteners. Deliver spares to location within 50 mile radius of work site designated by the Engineer. Furnish spare materials from same manufactured lot as materials installed and enclose in protective packaging with appropriate identification.

PART 2 - PRODUCTS

2.01 PANELS

A. Subject to conformance with the requirements of this section, use products fabricated by the following manufacturers or approved equivalent:

1. Armor-Tile by Engineered Plastics, Inc. of Williamsville, NY

2. ADA Solutions, Inc. of North Billerica, MA

3. Access Products of Buffalo, NY

B. Panels shall be manufactured from a fiber reinforced polymer composite.

C. Panel color shall be Federal Yellow conforming to Federal Color No. 33538. Color shall be homogeneous throughout the panel.

D. Truncated Dome Geometry

1. Truncated dome surface shall comply with Americans with Disabilities Act (ADA) Standards and California Building Code.

2. Truncated Dome Description

   a. Pedestrian Grade Crossings and Curb Ramps

      1) Square grid (in-line) pattern of raised truncated domes of 0.2-inch nominal height, base diameter of 0.9-inch and top diameter of 0.45-inch.

      2) Truncated domes shall have a center-to-center (horizontally and vertically) spacing of 2.35-inch as measured side by side in-line.

   b. Platforms

      1) Staggered pattern of raised truncated domes of 0.2-inch nominal height, base diameter of 0.9-inch and top diameter of 0.45-inch.

      2) Truncated domes shall have a center-to-center spacing of 1.67-inch diagonally, and center-to-center (horizontally and vertically) spacing of 2.35-inch as measured side by side in- line.

   c. To ensure a uniform appearance of the detectable warning surface throughout the transit system, equivalent facilitation findings or alternate patterns will not be acceptable.

3. Truncated dome pattern shall align properly from panel to panel.

E. Panel Configuration

1. Panel Thickness

   a. At a minimum, the thickness of the body of the detectable warning panel shall measure 3/16-inch (0.1875-inch) nominal.

2. Panel Size

   a. Pedestrian grade crossings and curb ramps (in-line pattern).

      1) Nominal 36-inch x 48-inch (or longer) with a 7/16-inch thick deep flange along both long sides.

   b. Platforms (Staggered Pattern)

      1) Nominal 24-inch x 48-inch with a 7/16-inch thick deep flange along both long sides.

3. Butt Joints

a. The detectable warning panel shall feature a butt joint detail from panel to panel. Alternatively, a ship lap detail may also be furnished.

F. Fastener Holes in Panel

1. Holes for fasteners shall be formed in the factory. Holes for fasteners, shall be located only at the centers of the truncated domes.

G. Performance

1. Panels shall comply with the following performance characteristics.

Property	ASTM Test Method	Nominal Value
Salt Spray (200 Hours)	B117	No Change
Wear Resistance	C501	500 (Min.)
Slip Resistance	C1028	0.80 (Min.)
Water Absorption	D570	0.05% (Max.)
Tensile Strength	D638	19,000 psi (Min.)
Compressive Strength	D695	28,000 psi (Min.)
Flexural Strength	D790	25,000 psi (Min.)
Chemical Resistance	D1308	No Stain or Discoloration
Gardner Impact Test	D5420	550 in. lbf/in (Min.)
Accelerated Weathering (3000 Hours)	G155	Delta E: 4.5 (Max.)

2.02 ACCESSORIES

A. Fasteners for Concrete

1. Color matched nylon expansion sleeves with ¼-inch diameter by 1-1/2 inches long stainless steel drive pins, or as recommended by panel manufacturer for specific job conditions and accepted by the Engineer.

B. Adhesive

1. Type approved by panel manufacturer.

C. Sealant

1. Urethane sealant of type approved by panel manufacturer.

D. Backer Rod

1. Acceptable to sealant manufacturer. Where required, such as, at platform expansion joints.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Apply adhesives, sealants, and mechanical fasteners in strict accordance with the guidelines set by their respective manufacturers.

B. Utilize manufacturer-provided template to lay out area to receive panels.

C. Form recess for panels by either milling with diamond blade head or casting recess in place (at new paving) so that installed panel will still flush relative to adjacent surface. Grind or form to the depth and width required by the approved shop drawings and manufacturer's instructions. Finish cast-in-place recess with equivalent of a light broom finish. When milled, substrate shall have a light ribbed finish.

D. Contain and remove slurry resulting from concrete milling and saw cutting. Do not wash slurry into track bed area.

E. Panels with Recessed Flanges

1. Utilize diamond bladed double headed wet saw to achieve parallel grooves to receive panels. Both saw cuts shall be made simultaneously from the same machine. Saw cut parallel to platform edge.

2. After saw cutting, vacuum and power wash surface with clean clear water free from all dirt and debris. Visually inspect surface for obtrusions or foreign matter. If obtrusions are present, remove by grinding. Remove foreign matter by grinding or further washing, as appropriate.

3. Immediately prior to application of the setting adhesive, inspect surfaces to receive panel to ensure that they are clean, dry, free of voids, curing compounds, projections, loose material, dust, oils, grease, sealers, and other contaminants. Verify that surfaces are structurally sound and that concrete has cured a minimum of 30 days. Obtain panel manufacturer's representatives and Engineer's approval of surface preparation before installing panels.

F. Set panels and install fasteners in accordance with panel manufacturer's instructions and as follows.

1. Wherever possible, install full size (uncut) panels. Do not install panel sections measuring less than 24 inches in length. Only cut panels where absolutely necessary.

2. Maintain gap between panels for expansion and contraction in accordance with manufacturer's instructions.

3. At platform expansion joints, cut panels on their short sides, finish cut edges smoothly, and lay panels with cut edges aligned with the edges of the substrate along the joints. Install fasteners on either side of the expansion joint at the time of initial installation. After a minimum of 4

hours, make a saw cut measuring 5/16-inch-wide across the composite detectable warning panel and fill with sealant. Make saw cut in the zone between truncated domes.

a. Where there is platform curvature, composite detectable warning panels shall be treated in a similar manner so that the joints remain uniform across the width of the joint between successive panels. However, in areas of platform curvature, the joint shall take on somewhat of a triangular configuration.

4. Cutting through panel domes shall be kept to a minimum. Where less than half of the truncated dome remains, grind off balance of dome; where over half of the truncated dome remains, feather dome so as not to present a tripping hazard.

G. Install sealant in accordance with manufacturer recommendations.

3.02 CLEANING AND PROTECTING

A. After the area has been fully paneled and sealant system applied, clean panel surface, following the manufacturer recommended maintenance and cleaning procedures.

B. Protect sealant and panels against damage during construction period. Comply with panel and sealant manufacturers' recommendations.

C. Protect panels against damage from rolling loads following installation by covering with plywood or hardwood.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Detectable Warning Panels.

4.02 PAYMENT

A. Full compensation for Detectable Warning Panels shall be included in the contract price paid per location, therefore no separate payment will be made.

END OF SECTION

SECTION 09 90 00
PAINTING AND COATINGS

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. Furnish all labor, materials, tools and equipment necessary and incidental to the painting, and finishing the surfaces as indicated on the Contract Drawings, as specified herein and as directed by the Engineer.

B. Painting shall include shop coat and field finish painting of all metal surfaces, including the complete canopy, railings, handrails, base plates, covers, connecting hardware, mounting brackets; field painting of railings and guardrails, fences, flashings, pipe bollards, and exposed mechanical or electrical equipment including housing; and the finish painting over shop coated exposed equipment.

1.02 RELATED SECTIONS

A. Section 05 52 00 – Handrails and Railings

B. Section 05 52 10 – Pedestrian Swing Gates

1.03 REFERENCES

A. SSPWC: Standard Specifications for Public Works Construction Current or Latest Edition

B. American Society for Testing and Materials (ASTM)

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Submit List of products: A complete list of products proposed for use on the project; include manufacturers' product descriptions of all materials; obtain approval before proceeding. Use the same manufacturers' products for all coats of each individual finish unless otherwise approved in writing by the Engineer.

C. Submit Product data: Alternate manufacturers' published literature for specified products and accessories as applicable, including manufacturers' specifications, physical characteristics and performance data. Submit as a supplement, manufacturers' instructions and directions for application if not included in the manufacturers' published literature.

D. Submit Samples: Of all paints and finishes proposed for use on the project, minimum size 8-1/2 inches by 11 inches. No painting or coating will be accepted prior to approval of the color sample.

1.05 QUALITY ASSURANCE

A. Application: Shall be by an experienced painter or a painting firm employing experienced personnel.

B. Conform to manufacturers' specifications, directions and recommendations for best results in the use of each of their products for each condition. If results are at variance with Specifications, report the discrepancy to the Engineer for decision.

1.06 DELIVERY, HANDLING AND STORAGE

A. Delivery and storage: Deliver paint materials in unbroken, unopened containers bearing the manufacturers' labels; do not open containers or remove labels until the Engineer inspects and approves. Store materials in a dry location where the indicated ambient temperature of storage is not less than 50 degrees Fahrenheit.

B. Precautions: Take extraordinary care to prevent fire; open containers or inflammable materials only as needed; keep rubbing cloths and oily rags in tightly closed metal containers, or remove from the site daily. Benzine, gasoline, and distillate will not be permitted on the job site.

C. Protection: Care shall be exercised in the handling of painting materials to ensure that this work and the work of other trades are not damaged before, during, or after the installation.

D. Replacements: Repair or replace damaged work, if any, as necessary to the approval of the Engineer at no additional cost to MTS.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. For metal surfaces paint materials shall be the products of Tnemec Co., Inc., or equal products by Ameron Protective Coatings Group, Rust-Oleum Industrial Coatings, Sherwin Williams, Porter International, or Pittsburgh Paints.

B. For gypsum board surfaces paint and stain materials shall be the products of Dunn-Edwards or equal products by Frazee Paint Co. or Sherwin Williams.

C. Materials selected for coating systems for each type of surface shall be the product of a single manufacturer.

D. All paint materials shall be the respective equivalent, in the opinion of the Engineer, to the several types of materials specified. Deliver all materials to the job site in the original, unbroken containers, bearing the manufacturers' labels indicating the contents and directions for use, storage, and handling.

E. Materials not specifically noted but required for the work, such as linseed oil, shellac, thinners, etc., shall be the product of the approved paint manufacturer

2.02 MIXING

A. Mix paint products according to the manufacturers' painted directions. Do not adulterate in any manner except upon specific approval of, and in the presence of the Engineer.

2.03 COLOR SELECTION

A. The color selection will be made by the Engineer from submitted manufacture’s standard colors.

B. Submit color samples, allowing minimum two weeks for consideration before the material to be painted is to be ordered and delivered or ready for painting.

2.04 IDENTIFICATION

A. The manufacturers' identification numbers and specifications listed are for the purpose of indicating the type and quality of paint product desired for the purpose indicated.

PART 3 – EXECUTION

3.01 GENERAL

A. Apply paints in accordance with the manufacturers' recommendations as to the application, weather, and temperature conditions. Provide "highest" quality workmanship performed to the Engineer's satisfaction. Use clean equipment and brushes when applying paint; spread paint materials evenly, without runs, sags, laps, or brush marks, without variations in color, texture, or sheen, and without voids in the paint or coating coverage of any size.

B. Vary colors or sheen between coats and apply all coats to uniform thicknesses.

C. Cut sharp lines against glass, other materials, and different colors. Recoat suction spots in the first coat as necessary to produce uniformity of color and gloss.

D. Refinish any work judged defective at no additional cost to MTS; repair all work damaged during the progress of the construction.

E. Leave finished surfaces clean, completely covered, uniform in appearance, and satisfactory to the Engineer.

3.02 SURFACE PREPARATION

A. General: Clean all surfaces thoroughly, removing all rust, mill scale, fabrication films, dust, dirt, and other foreign matter from surfaces. Grind smooth all welds flush with adjacent surfaces. Apply film to completely dry surfaces.

B. Galvanized metal: Thoroughly clean surfaces, wiping with mineral spirits or xylol. If silicone surface treatments have been applied in the fabrication shop, use xylol; remove silicates or similar surface treatments and deposits of "white rust" by sanding or other approved abrasive methods. Thoroughly clean and rinse contaminants from surfaces.

C. Ferrous metal surfaces: Thoroughly clean using mineral spirits, xylol, or toluol in accordance with SSPWC-SP No. 1. Take care to ensure that adequate ventilation is provided at all times when using solvents. Carefully rinse and clean surfaces before applying paint.

D. Gypsum Board

1. Remove dust, loose particles or other matter that would prevent proper paint adhesion.

2. Check to see that joints and screw heads are properly covered with joint compound and sanded smooth and flush with adjacent surfaces.

E. Condition of surfaces: Inspect and approve conditions of substrate surfaces scheduled to receive paint; notify the Engineer of any surfaces unsuitable for application as specified. The application of a Paint finish constitutes an acceptance of the surface as suitable, unless directed to proceed in writing by the Engineer. The work shall not be performed during wet or freezing weather, or until surfaces have thoroughly dried from the effect of such weather.

F. Mixing and thinning: Mix and thin paint products in strict accordance with the manufacturers' directions; mix and thin other materials in accordance with the "best" trade practices as approved.

3.03 APPLICATION

A. Number of coats: As specified for each type of finish.

B. Thickness of coats: Use ample undiluted materials; apply in a uniform thickness over entire areas; do not exceed the manufacturers' recommended spreading rate per gallon. Comply with DFT specified.

C. Color of coats: Tint prime coats if necessary to obtain uniform finish coats. Vary color between coats; the final coat shall exactly match approved samples.

D. Approval of successive coats: Obtain the Engineer's approval of each coat before the succeeding coat is applied; if this approval is not obtained, the Engineer reserves the right to require an additional coat.

3.04 MECHANICAL OR ELECTRICAL EQUIPMENT

A. Apply primer and 2 finish coats as specified for the appropriate metal surface according to the finish schedule.

3.05 PROTECTION OF FINISHED WORK

A. Use tarpaulins or drop cloths when working above or adjacent to completed work. Clean all paint splatters and stains from finished surfaces. Protect all work from dust and insects.

B. Protect all work until handover of the Work to MTS.

3.06 METAL SURFACES

A. General: Provide the following paint systems for the various substrates, as indicated.

B. Surface preparation not performed under other Sections: SSPWC-SP11 Power Tool Cleaning to bare metal all welds and damaged prime coat.

C. Paint system

1. Spot prime for galvanized surfaces and surfaces primed with zinc-rich primer: 90-97 Tneme-Zinc applied at 2.5 to 3.5 mils DFT.

2. First coat: Tnemec 60 Epoxoline applied at 4 to 6 mils DFT.

3. Top coat: Tnemec 75 Endura-Shield applied at 2 to 3 mils DFT.

3.07 GYPSUM BOARD

A. First coat: PVA sealer

B. Second coat: 100% acrylic

C. Third coat: 100% acrylic

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Work of this Section is considered incidental to work under other payment items and no separate measurement will be made to the Contractor for Work of this Section.

4.02 PAYMENT

A. Work of this Section is considered incidental to work under other payment items and no separate payment will be made to the Contractor for Work of this Section. Work of this section shall include furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

SECTION 10 14 55
RAILROAD SIGNAGE

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. This Section consists of furnishing all labor, materials, and equipment necessary and incidental to maintaining existing railroad signage and constructing new railroad signage at the locations indicated in the Technical Specifications, on the Contract Plans, and/or as directed by the Engineer.

B. Work Included:

1. All Work associated with constructing new and maintaining existing railroad signage along the right-of-way, including excavation for signposts.

2. MTS will provide the Contractor with information and placement of new train speed signage.

3. The Contractor shall place signage at the pedestrian grade crossings and highway grade crossings as shown in the Contract Drawings.

4. If the Contractor cannot construct the signage at the locations indicated in the plans or standards due to obstructions, clearance limitations or topography, request direction from Engineer.

1.02 REFERENCE STANDARDS

A. California Public Utility Commission (CPUC):

1. General Order 26-D – Regulations Governing Clearances on Railroads and Street Railroads with Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways and Streets.

2. General Order 118 - Construction, Reconstruction and Maintenance of Walkways and Control of Vegetation Adjacent to Railroad Tracks.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Submit Manufacturer or Supplier’s certifications stating that the Materials delivered to the site are in compliance with these Specifications.

C. Submit Shop Drawings showing details of sign lettering, manufacturer’s information for materials, posts, foundations, anchor details (including anchorage).

PART 2 - PRODUCTS

2.01 MATERIALS

A. When details are not shown on the Plans, the Contractor shall use materials and methods which comply with the LOSSAN Engineering Standards (ES). Railroad signage shall conform to the following Standard Drawings:

1. Sign lettering shall conform to LOSSAN requirements, Arial Bold Lettering or to the LOSSAN Engineering Standards drawing for a specific sign.

2. Sign post, anchors and fasteners shall conform to LOSSAN requirements, Details for Installing Signs at Grade.

PART 3 - EXECUTION

3.01 MAINTENANCE AND PROTECTION OF EXISTING SIGNAGE

A. Maintain and protect in place the existing railroad signage until such time as it can be replaced with new signage, or relocated at a permanent location, as shown on the Contract Drawings. Signs may be temporarily relocated to prevent their damage. Contractor shall confer with the Engineer for proper location and orientation of relocated signs.

B. No existing signage shall be removed unless approved by the Engineer.

C. Any existing railroad signs damaged by the Contractor's operations shall be replaced within 5 days at the Contractor's sole expense. Signage not replaced or repaired within these time periods will be replaced by the Authority at the Contractor's expense; the cost of such replacement will be deducted from any payment due the Contractor.

D. Placement of temporarily relocated and permanent signs shall comply with current editions of CPUC General Order 26 and 118.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Railroad Signage.

4.02 PAYMENT

A. The Contract price paid per each Signal Location Complete shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals; and for all the work required in Railroad Signage, therefore no separate payment will be made.

END OF SECTION

SECTION 31 11 00
SITE CLEARING

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This Section include site clearing and grubbing of trees, stumps, undergrowth, brush, trash, grass, weeds, roots, rubbish, refuse, or other debris, modifying irrigation systems, stripping of topsoil, and protecting trees within the limits of excavation, embankment, borrow, and other areas as shown in the Contract Documents.

1.05 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Site Clearing Plan

1. The Contractor shall prepare a Site Clearing Plan and submit to the Engineer for approval prior to commencing work. The site clearing plan shall include:

    a. Location and limits of clearing and grubbing

    b. Methods to be employed and equipment to be used

    c. Safety measures including signs, barriers, temporary walkways, and hand railing.

    d. Haul routes and disposal sites

    e. Permits for transport of materials off the worksite where applicable and other permits as required by local agencies, project environmental documents, and the Contract Documents.

    f. Schedule of site clearing activities including anticipated railroad flagging needs.

2. Permits, Notices, Certifications, and Authorizations

    a. The following permits, notices, certifications, and authorizations shall be obtained with copies submitted by the Contractor to the Engineer in accordance with the Contract Documents.

        1) Delivery manifests for disposed materials in accordance with site clearing plan and permit conditions.

2) Disposal certification for materials removed from the job site indicating they have been disposed at a legal site.

1.02 ENVIRONMENTAL CONDITIONS

A. On-site burning or burial of site clearing materials will not be allowed.

B. The Contractor shall take possession of material, debris, and hazardous materials collected from site clearing procedures and be responsible for disposing of them in accordance with the Contract Documents and applicable laws and regulations.

C. Contractor shall provide noise abatement in accordance with Article 3.24 of the Standard Construction Agreement and General Conditions.

D. Site cleanliness, sweeping, and dust control shall be in accordance with Article 3.22 of the Standard Construction Agreement and General Conditions.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 PREPARATION

A. Protect existing trees, other vegetation, and existing site improvements on MTS or adjacent property except for the Work identified in the Contract Documents.

1. Do not smother trees by stockpiling construction materials or excavated materials within drip line.

2. Avoid foot or vehicular traffic or parking of vehicles within drip line of trees or shrubs.

3. Provide barricades, coverings, temporary fencing, or other types of temporary protection as required by the Contract Documents with the approval of the Engineer.

B. Repair or replace trees, vegetation, and existing site improvements including modifying irrigation systems that are to remain that have been damaged by construction operations.

1. Repair of damaged trees and shrubs shall be performed by a certified arborist or tree surgeon.

2. Remove trees that are damaged to the extent that a certified arborist or tree surgeon determines cannot be repaired and restored to full-growth status. Replace with new trees of minimum 4 inches caliper.

3. Damaged vegetation shall be replaced in-kind as approved by the Engineer.

3.02 SITE CLEARING

A. Topsoil, fertile, friable soil of a loamy character with organic matter normal to the area shall be removed, stockpiled, and protected from erosion per the requirements of the Regional Water Quality Control Board.

1. Strip topsoil to depths encountered.

a. Remove heavy growths of grass before stripping.

b. Stop topsoil stripping sufficient distance from such trees to prevent damage to main root system.

c. Separate from underlying subsoil or objectionable material.

2. Stockpile topsoil where directed by the Engineer

a. Construct stockpiles to freely drain surface water

3. Topsoil from borrow sources shall be free of subsoil, objects over 2 inches in diameter, weeds, and roots.

4. Clear from within limits of construction all trees

a. Include shrubs, brush, downed timber, rotten wood, heavy growth of grass and weeds, vines, rubbish, structures, and debris.

b. Rubbish shall be removed from cleared areas and disposed of in accordance with State and local laws.

c. Cleared areas shall be left smooth and free of obstructions or depressions that will impound water.

B. Removed materials shall become the property of the Contractor and shall be disposed of outside the public right-of-way in conformance with reference Section 300-1.3 “Removal and Disposal of Materials” of the Standard Specifications for Public Works Construction 2009. Within the limits of clearing, all stumps, roots, root mats, logs, debris, and other objectionable material shall be removed as follows:

1. Grubbing shall extend to the outside excavation and fill slope lines except where tops of slopes are to be rounded. In these locations, the areas shall extend to the outside limits of slope rounding.

2. Grub where sub-drainage trenches will be dug with unsuitable material removed or structures built.

3. Grub areas in which hillsides or existing embankments will be terraced.

a. Areas beneath embankments greater than 3 feet in depth shall be free from all vegetation and roots to a depth of 6 inches below the ground surface after topsoil has been removed.

b. For embankments 3 feet in depth or less, roots that are over 2 inches in diameter shall be removed to a depth of 1 foot below ground surface.

3.03 CLEAN-UP

A. Remove and dispose of barricades, coverings, or other protections used to prevent damage to existing vegetation or improvements upon clean-up of the Work.

3.04 SCHEDULE

A. Contractor shall complete clearing and grubbing work far enough in advance of other operations to permit the placement of construction stakes. Construction schedule shall be adjusted so cleared areas are not left susceptible to erosion or sediment runoff due to weather.

3.05 ACCEPTANCE

A. Upon completion of the site clearing, obtain Engineer's written acceptance of the extent of clearing, depth of stripping, and removal of deleterious material.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. Measurement for “Clear and Grub” within the Civil Sections of the Contract Documents shall be lump sum.

4.02 PAYMENT

A. No separate payment shall be made for the requirements of this Section unless specifically noted for separate payment as stated herein. Full compensation for complying with the requirements of this section, not otherwise provided for, shall be considered as included in contract prices paid for the various items of work involved, and no additional compensation will be allowed therefore.

B. “Clear and Grub”, constructed in place in accordance with the Civil Sections of the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

SECTION 31 11 50
DEMOLITION, CUTTING AND PATCHING

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. Demolition, removal and disposal, salvage, cutting and patching of existing construction, surface or subsurface as shown on the Contract Documents or as required to accommodate the Work.

1.05 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Demolition Plan

1. The Contractor shall prepare a Demolition Plan and submit to the Engineer for approval prior to commencing work. The Demolition Plan shall include:

a. Location and limits of demolition

b. Methods and equipment to be utilized including backfilling of excavations and depressions

c. Shoring or other structures necessary to complete the demolition in accordance with Section 31 50 00, Excavation Support.

d. Proposed materials and methods to be used for cutting and patching or matching and repairing existing construction to remain.

e. Safety measures including signs, barriers, temporary walkways, and hand railing.

f. Schedule for performing site demolition, cutting, and patching including railroad flagging needs.

g. Haul route and disposal sites.

h. Traffic control measures or traffic plan where required by Contractor's proposed methods in accordance with the Contract Documents and local roadway authority.

i. Identification of permits as required by the State or local agency.

j. Contractor shall provide material certification indicating manufacturer and type of proposed non-shrink grout and epoxy bonding adhesive for patching or repairs to existing concrete structure to remain.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following products and manufacturers are acceptable for non-shrink grout and epoxy bonding adhesive to be used for patching of concrete to remain after demolition.

1. Non-shrink Grount

a. Supreme Grout by Gifford Hill

b. Masterflow 713 Plus by BASF Building Systems

c. Sika Grout 212 by Sika Corporation

2. Epoxy bonding adhesive

a. Euco No.452 MV by Euclid Chemical Company

b. Sikadur 32, Hi-Mod by Sika Corporation

B. Submit request for substitution in accordance with Article 3.12, Request for Substitution, in the General Conditions.

2.02 MATERIALS

A. Non-shrink Grout

1. Nonmetallic, noncorrosive, and non-staining

2. Premixed with only water to be added in accordance with manufacturer's instructions at jobsite.

3. Grout to produce a positive but controlled expansion. Mass expansion not to be created by gas liberation or by other means.

4. Minimum compressive strength at 28 days to be 6500 psi.

5. Coat exposed edges of grout with a cure/seal compound recommended by grout manufacturer.

B. Epoxy Bonding Adhesive

1. Two component, moisture insensitive adhesive manufactured for the purpose of bonding fresh concrete to hardened concrete.

C. Other Temporary or Permanent Material

1. Other temporary or permanent material, such as backfill shall be provided by the Contractor for proper execution of work in this Section.

PART 3 – EXECUTION

3.01 GENERAL

A. No party other than the Contactor shall remove demolished material from MTS property.

B. Contractor shall perform the demolition, removal, salvage, cutting, and patching including handling of demolished debris in accordance with the Contract Documents and the submitted approved site demolition plan.

C. Any shoring, if required to accomplish demolition work, shall be designed and constructed in accordance with Section 31 50 00.

3.02 EXISTING STRUCTURES AND RELATES FACILITIES

A. Where demolition is indicated, remove and dispose of:

1. Coordinate existing fence removal with maintaining temporary and permanent site security.

2. Temporary fences when no longer required to protect and secure the construction site.

3. Structures in their entirety or portions to be demolished.

a. Exposed remaining concrete faces shall be saw cut to neat lines or finished with epoxy binder and non-shrink grout.

b. Concrete shall be removed as required and any remaining concrete to be utilized in the finished work or left as an existing structure shall be protected from damage and finished with epoxy binder and non-shrink grout or as indicated in the Plans.

4. Obstructions in their entirety or portions of obstructions including abandoned concrete signal foundations, footings, and bases located within the right-of-way shall be demolished.

B. Removal and disposal shall be in accordance with the Contract Documents and the approved site demolition plan. Where salvage of material or portions of structures and related facilities is indicated, material shall be carefully removed for installation of new work and neatly stacked at a location approved in advance to the satisfaction of the Engineer and in accordance with the approved site demolition plan. The materials shall be left in a satisfactory condition for use by MTS.

C. The Contractor shall replace or repair, at no expense to MTS, any existing structure or portion of existing structure or related facility designated to remain that are damaged during removal of the portions designated for demolition.

3.03 PAVEMENT

A. Pavement shall be demolished as indicated in the Plans and removed in accordance with the submitted and approved site demolition plan.

B. Pavement shall be removed to clean straight lines. Saw cutting of edges to be joined is required. Saw cuts shall be a minimum depth of 1-1/2 inches.

1. Portland cement concrete pavement removal shall have a second full depth relief saw cut offset 12 to 18 inches parallel to the initial saw cut unless approved otherwise.

2. If a saw cut in concrete falls within three feet of a construction joint, cold joint, expansion joint, or edge, the concrete shall be removed to the joint or edge.

C. The Contractor shall replace, at no expense to MTS, any existing pavement designated to remain that is damaged as a result of Contactor activities.

3.04 WIRING AND POLES

A. Wiring and Poles designated to be removed by the Contractor shall be removed in accordance with the Contract Plans and the approved site demolition plan. No work shall be performed until clearance to proceed has been provided by the Engineer.

3.05 BACKFILL OF DEMOLITION EXCAVATIONS

A. Any shoring used for support of demolition excavations shall be removed in accordance with Section 31 50 00, Excavation Support and the submitted and approved site demolition plan.

B. Excavations created by demolition activities shall be backfilled and compacted.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. Measurement for “Saw cut” within the Civil Sections of the Contract Documents shall per linear foot (LF).

4.02 PAYMENT

A. No separate payment shall be made for the requirements of this Section unless specifically noted for separate payment as stated herein. Full compensation for complying with the requirements of this section, not otherwise provided for, shall be considered as included in contract prices paid for the various items of work involved, and no additional compensation will be allowed therefore.

B. “Saw cut”, constructed in place in accordance with the Civil Sections of the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

SECTION 31 23 00
EXCAVATION AND FILL

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. Earthwork shall conform to the provisions in Section 300, “Earthwork,” of the SSPWC, the Technical Specifications, and the General and Special Conditions. All references to "roadway," highway," or "roadbed" in the SSPWC shall be considered applicable to the trackway. Roadway excavation and roadway embankment shall include "trackway."

B. Valve boxes, manhole covers, and drainage structures within the limits of any grading operation shall be adjusted to proposed finish grade.

C. Embankment materials shall be free from organic and otherwise deleterious materials and as provided in Section 300, “Earthwork,” of the SSPWC.

D. Surplus excavated material shall become the property of the Contractor and shall be disposed of outside the right-of-way in conformance with Federal, State, and local regulations.

E. Trench backfill requirements related to railroad signal and communications subsurface conduit work is defined in Section 34 42 13.21 Miscellaneous Signal System Products Part 3.01.

1.02 REFERENCES

A. City of San Diego Standard Specifications (Green Book), Current Edition

B. City of San Diego Standard Specifications, Supplement to Green Book (White Book), Current Edition

C. City of San Diego Standard Plans, Current Edition

D. San Diego Regional Standard Plans, Current Edition

PART 2 – PRODUCTS

2.01 IMPORTED SOIL

A. Import materials shall have a liquid limit of 25 or less, a plasticity index of 12 or less, and be well graded with no greater than 30 percent of the particles passing the No. 200 sieve and no particles greater than 6 inches in maximum dimension. Import materials shall be non-corrosive in accordance with the following corrosive limits as provided in Section 8.1 of the Caltrans Corrosion Guidelines, Version 2.0, 2012:

1. Minimum resistivity shall be greater than 2000 ohm-cm, CT 643

2. Chloride concentration shall be less than 250 ppm, CT 422

3. Sulfate concentration shall be less than 500 ppm, CT 417

4. pH shall be between 5.5 and 10.0, CT 643

PART 3 – EXECUTION

3.01 HAZARDOUS WASTE IN EXCAVATION

A. If the Contractor encounters hazardous waste in excavation, as defined by Section 25117 of the Health and Safety Code, the Contractor shall immediately notify the Engineer in writing. Excavation in and around the suspected hazardous material shall be suspended until the Engineer authorizes it to be resumed. The limits of excavation shall be as directed by the Engineer. If such suspension delays the current controlling operation, the Contractor will be granted an extension of time as provided in Article 3.33, Time for Completion and Liquidated Damages, of the General Conditions.

B. If such suspension delays the current controlling operation more than 2 working days, the delay will be considered a right-of-way delay and the Contractor will be compensated for each such delay as provided in Article 3.33, Time for Completion and Liquidated Damages, of the General Conditions.

C. MTS reserves the right to use other forces for exploratory work to identify and determine the extent of such material and for removing hazardous material from such areas.

D. If hazardous material is encountered the Contractor shall mobilize employees with the herein designated safety and remediation training within 24 hours of the Contractor, MTS or third party determining a hazardous or contaminated soils condition exists in an excavation. The Contractor shall have the trained employees available prior to the start of any hazardous material excavation and at the direction of the Engineer, the Contractor shall include a hazmat training as a scheduled task in the Contract Schedule. No additional working days shall be granted for the Contractor's inability to provide and mobilize trained workers within the 24-hour time limit.

E. The employees shall be trained through an OSHA approved Hazardous Waste Operations and Emergency Response Standard (Hazwoper) 40 Hour Training class or have a Hazwoper refresher course within one year prior to the date the work is to be performed; and possess a certificate showing successful completion of the Hazwoper training. OSHA accepted Hazwoper training shall conform to all Federal, State, and Local requirements (including those specified in 29 CFR 1910.120.) In addition, workers shall have additional hands-on training in use of the Personal Protective Equipment (PPE) required for their jobsite(s) in accordance with 29 CFR 1910.120.

F. Voids resulting from excavation of hazardous material shall be backfilled in accordance with Section 300-3, "Structure Excavation and Backfill," of the SSPWC and as specified in the Technical Specifications. Backfill material shall comply with Article 2.01, "Imported Soil."

G. Prior to removal from Site, the impacted soil and other potential hazardous or regulated waste must be profiled to determine the following:

1. Hazardous waste determination

2. The proper documentation (e.g. hazardous waste manifest or bill-of-lading)

3. The proper disposal (or treatment) facility.

4. Waste manifest or bill-of-lading shall be signed by the waste generator, transporter, and disposal facility.

H. Hazardous waste shall only be transported by a Department of Transportation (DOT) licensed hazardous waste hauler. Hazardous waste and petroleum-impacted (nonhazardous) waste shall utilize shipping documents acceptable to the receiving facility and in compliance with state and federal requirements. Each load must be accompanied by a signed hazardous waste manifest or bill-of-lading. Each load must be completely covered with a secured tarp.

I. Contractor is to provide pricing for 3 allowances based on the inability to reuse spoils from excavation. Contractor is to provide a credit for any and all allowance items that are not required or used and will be credited back via a unit price change order. The allowances shall be priced as follows:

1. Price per cubic yard for hazardous soils export that is found to exceed levels allowed to be reused for fill material and are to be exported as hazardous with manifest.

2. Price per cubic yard for Cal-hazardous soils export that is found to exceed levels allowed to be reused for fill material and are to be exported as Cal-hazardous with manifest.

3. Price per cubic yard for providing, importing and placement of an equitable amount of suitable fill to replace hazardous soils that were exported as part of the allowance hazardous soil export work.

3.02 TRENCH EXCAVATION

A. Open trenches and excavations shall be covered or barricaded to protect pedestrians and vehicles in accordance with Section 01 00 00, 3.15 Temporary Traffic Control Devices, of the Technical Specifications. Following excavation, Contractor shall minimize exposure of public to open trenches.

B. Trench excavation and shoring requirements adjacent to the existing rail shall comply with Section 7.0, “Railroads,” of the Caltrans’ California Trenching and Shoring manual to determine railroad live loading lateral pressure for shoring design. Shoring shall be designed to accommodate LRV loads as shown in the LRV Loading Diagram of SANDAG LRT Design Criteria. All shoring within a 1 to 1 influence line from the end of the railroad ties shall be designed for a minimum Cooper E-80 load per bogie/axel.

C. Trench excavation through surface improvements shall be resurfaced in accordance with Section 32 01 17, Trench Resurfacing, of the Technical Specifications.

D. All surplus excavation, from whatever source, shall be disposed of outside the railroad or highway right-of-way in conformance with Federal, State, and local regulations.

3.03 TESTING EXCAVATED MATERIAL

A. Excess excavated soil may be tested for potential use as structural fill material elsewhere in compliance with Article 2.01, Imported Soil. Contractor shall submit test results prior to placement. Where soil is compliant, Contractor shall stockpile or place soil as required. Stockpiling of compliant excavated soil shall remain within limits of work or designated offsite area in accordance with Section 01 00 00, 3.06 Construction Staging Area, of the Technical Specifications.

3.04 IMPORTED SOIL AS BACKFILL

A. Where excavated soil is insufficient or does not meet soil requirements for backfill, Contractor shall import suitable backfill material complying with Article 2.01, Imported Soil, above.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. Measurement for imported soil within the Civil Sections of the Contract Documents shall per cubic yard (CY) compacted in place. All costs for hauling and placing imported soil shall be included in the unit price.

C. Hazardous materials in excavation shall be measured by the cubic yard of impacted soil removed from the site. MTS and the Engineer shall determine the extent of the hazardous material to be excavated. Excavation determined to contain hazardous material shall be isolated and not comingled with other uncontaminated material as directed by the Engineer.

4.02 PAYMENT

A. Unless otherwise stated full compensation for complying with the requirements of this Section shall be considered as included in the contract prices paid for the various items of work involved, unless otherwise stated, and no additional compensation will be allowed therefore.

B. Payment for removal of hazardous waste in excavation as determined (hazardous with manifest of Cal-hazardous with manifest), shall be per the contract allowance unit price paid per cubic yard and shall include obtaining any necessary permits, required state, federal, municipality or disposal facility testing and analysis, stockpiling, handling, sample storage, hazardous material transportation and disposal at a legal facility, reuse, documentation, and relevant disposal fees.

C. Imported soil, furnished and compacted in place in accordance with the Civil Sections of the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

D. Imported soil, furnished and compacted in place in accordance with the Signal Sections of the Contract Documents shall be included in the lump sum contract price paid for that location’s Signal Location Complete. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

E. Imported soil, furnished and compacted in place as suitable fill to replace hazardous soils that were exported shall be per the contract allowance unit price paid per cubic yard and shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, transport, delivery and incidentals, and doing all work as directed by the Engineer.

END OF SECTION

SECTION 31 50 00
EXCAVATION SUPPORT

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. Section includes minimum requirements for excavation and temporary excavation support adjacent to railroad tracks.

1. Limitations on construction activities.

2. Installation, monitoring, and removal requirements for temporary excavation support systems.

3. Design, submittal and review requirements for excavations and temporary excavation support systems.

1.02 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Excavations and temporary excavation support shall require pre-approval prior to construction and shall be submitted as part of the Contractor's Work Plan. Prepare and submit detailed Plans of excavation limits, depth of excavation, temporary excavation support system(s) and all construction phasing and structural details required for the Work. Include associated installation and removal procedures.

C. Submit Drawings and Calculations required for sheeting, shoring and other excavation support systems:

1. Drawings and Calculations shall be prepared, signed and sealed by a Professional Engineer licensed to practice in the State of California.

2. Include plan views indicating the extents of all proposed shoring relative to the nearest track centerline.

3. Include cross-sections of all proposed shoring.

4. Include cross-sections cut perpendicular to the track; indicated the track location relative to the support system and use equal horizontal and vertical scales.

5. Vertical dimensions shall be relative to top of rail and horizontal elevations shall be relative to the nearest track centerline.

6. Drawings shall also indicate details of all structural members, connection details and embedment depths.

7. Indicate construction access locations.

8. Include Design Calculations required for sheeting, shoring and other excavation support systems, prepared, signed and sealed by a Professional Engineer licensed to practice in the State of California.

D. The Contractor shall submit a detailed Track Monitoring Plan, including plans and procedures for inspection and surveying. The monitoring plan shall comply with the approved Work Plan.

1.03 DESIGN CRITERIA

A. Design the excavation support in accordance with AASHTO and AREMA requirements, to support all loads including:

1. Earth pressures

2. AASHTO HS20 traffic loading

3. AREMA Cooper E-80 Railroad loading

4. Utility loads

5. Loads from adjacent structures

6. Ground water pressure

7. Equipment and construction loads

B. No increases in allowable stresses or reductions of safety factors are permitted.

C. The excavation support shall allow safe and expeditious construction of the permanent structure without movement or settlement of adjacent buildings, structures, utilities, or track work.

D. Excavations and shoring systems shall be such that AREMA Cooper E-80 Loading can be accommodated at all times during the shoring construction. Shoring construction shall be performed without affecting railroad operations unless otherwise approved in advance by the Engineer.

E. Temporary sheeting and shoring for support of adjacent tracks during construction shall not be closer than 8’-6” from the nearest track centerline per CPUC GO26-D and GO-118.

F. Sheet Piling Zone

1. The Sheet Piling Zone shall be defined as the area between the following boundaries:

a. A vertical line offset 8’-6” from the nearest track centerline

b. A 1:1 projection beginning at a point located 8’-6” from the nearest track centerline and 2 feet below top of rail of the nearest track. Said 1:1 project shall slope down and away from the nearest track.

2. All shoring within the Sheet Piling Zone shall be designed for AREMA Cooper E-80 Loading.

3. Shoring within the Sheet Piling Zone shall be of a type where the shoring is installed in place prior to any excavation being performed, and where the excavation can be made with no possibility of disturbance or loss of soil material retained between the shoring and the track. Un-shored excavations within the Sheet Piling Zone shall not be allowed.

4. Shoring types acceptable within the Sheet Piling Zone are interlocking edge sheet piling and tongue and groove edge precast concrete sheet piling, which are driven or vibrated in position prior to starting any excavation. Shoring types using lagging elements which are placed as excavation proceeds are not permitted within the Sheet Piling Zone.

5. Shoring within the Sheet Piling Zone shall be abandoned in place, except for the top 2 feet, which shall be removed and backfilled in accordance with these specifications.

G. Shoring Zone

1. The Shoring Zone shall be defined as the area between the following boundaries:

a. A 1:1 projection beginning at a point located 8’-6” from the nearest track centerline and 2 feet below top of rail of the nearest track. Said 1:1 projection shall slope down and away from the nearest track.

b. A 1.5:1 projection beginning at a point location 11’0” from the nearest track centerline and 2 feet below top of rail of the nearest track. Said 1.5:1 projection shall slope down and away from the nearest track.

2. All shoring within the Shoring Zone shall be designed for AREMA Cooper E-80 Loading

3. Shoring types using lagging elements which are placed as excavation proceeds are permitted within the Shoring Zone. Un-shored excavations within the Shoring Zone shall not be allowed.

H. Excavation Zone

1. The Excavation Zone shall be defined as the area that is located beyond (in a direction away from the nearest track) the following boundary:

a. A 1.5:1 projection beginning at a point location 11’0” from the nearest track centerline and 2 feet below top of rail of the nearest track. Said 1.5:1 projection shall slope down and away from the nearest track.

2. Sloping cuts are allowed within the Excavation Zone. Excavations and shoring within the Excavation Zone are not required to be designed for railroad live loading.

I. Handrails shall be provided in accordance with Cal OSHA and CPUC General Order 26-D.

J. Tiebacks or any other excavation support mechanisms that are installed under the track structure shall be at least 24 inches clear below top of rail.

1.04 QUALITY ASSURANCE

A. Excavations and temporary excavation support shall be designed by a licensed Professional Engineer in the State of California, civil or structural, hired by the Contractor.

B. Review and acceptance of submittals by MTS shall not relieve the Engineer in Responsible Charge and the Contractor of responsibility for the safe design and construction of the temporary shoring system, including responsibility for errors and omissions in submittals and construction deviations from the accepted design plans. Excavation safety shall be the responsibility of the Contractor performing the shoring installation and excavation.

1.05 SITE CONDITIONS

A. Contractor shall execute Work under this Specification to minimize impact to the daily operation of the rail, vehicular and pedestrian traffic.

B. The Contractor shall barricade open excavations and post with warning lights those excavations occurring on property adjacent to or within public access areas and along the tracks. Operate warning lights during the hours from dusk to dawn each day and as otherwise required. Warning lights shall be located to avoid shining directly into the Trolley Operator’s eyes in oncoming trains.

C. The Contractor shall protect utilities, structures and facilities designated to be protected in place from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation and backfill operations.

D. The Work shall allow rainfall to drain freely at all times.

1.06 ENVIRONMENTAL CONDITIONS

A. The Contractor shall protect against erosion and uncontrolled run-off within and adjacent to right-of-way in accordance with 01 00 00, General Requirements.

B. The Contractor shall obtain all required permits for dewatering and legally dispose of water from dewatering operations.

C. Cleanliness, Sweeping and Dust Control shall be in accordance with the General Conditions requirements.

D. Contractor shall provide noise abatement as required by environmental permits or local agency requirements in accordance with the General Conditions requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Soil and rock materials for fill, backfill or subgrade preparation shall be as specified by the Contractor's Engineer and approved by MTS.

B. Hot Mix Asphalt (HMA) pavement shall meet the requirements of Section 32 12 00.

C. Materials used in the excavation support system shall be new unless otherwise approved by MTS.

PART 3 – EXECUTION

3.01 INSTALLATION AND MONITORING

A. Perform excavation work in accordance with all applicable safety regulations including, but not limited to, MTS, Federal OSHA, Cal/OSHA, FRA and CPUC.

B. Initiate track monitoring program according to the approved Track Monitoring Plan.

C. Protect existing surface and subsurface features on-site and adjacent to site before excavating or installing temporary excavation support systems.

D. Perform site clearing in accordance with Section 31 11 00.

E. Perform demolition and removals in accordance with Section 31 11 50.

F. Excavations and temporary excavation support systems shall be installed, maintained, removed and backfilled in accordance with the approved Work Plan and without interference to rail operations unless otherwise approved in advance by MTS. Contractor shall complete installation and removal of excavation support systems within the approved time limits and as directed by the MTS Flagman.

G. Install temporary excavation support systems in a manner that maintains stability and integrity of the existing track, embankment and structures.

H. Perform excavation in accordance with Section 31 23 00 and in a manner that maintains stability and integrity of any temporary excavation support and the existing track, embankment and structures.

I. Temporary excavation support systems shall allow for permanent construction without movement or settlement of adjacent track, embankment or structures under all conditions and imposed loads for the duration of construction.

J. Direct surface drainage away from existing tracks, structures, excavation support systems and open excavations, slope base of excavation away from support systems, and protect excavations and soil slopes from erosion.

K. Remove temporary excavation support systems in a manner that maintains stability and integrity of any remaining temporary excavation support and the existing track, embankment and structures.

L. Contractor shall immediately comply with orders from MTS to stop work or perform immediate backfilling of open excavations or other emergency remedial work when MTS, at its sole discretion, determines that the safety of trains, passengers and MTS employees may be in peril.

3.02 FIELD QUALITY CONTROL/QUALITY ASSURANCE

A. Final track monitoring data shall be collected at the specified number of days following the completion of removal and backfilling operations per the approved Track Monitoring Plan.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

4.02 PAYMENT

A. Full compensation for Excavation Support shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made

END OF SECTION

SECTION 32 01 17
TRENCH RESURFACING

PART 1 – GENERAL

1.01 SUMMARY

A. This Section specifies the material work requirements for trench resurfacing to be furnished and placed to the lines, grades, and dimensions in accordance with these Technical Specifications, the Plans, and as directed by the Engineer.

1.02 REFERENCES

A. City of San Diego Standard Specifications (Green Book), Current Edition

B. City of San Diego Standard Specifications (White Book), Current Edition

C. City of San Diego Standard Plans, Current Edition

D. San Diego Regional Standard Plans, Current Edition

E. 32 12 00 Hot Mix Asphalt Pavement

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements, and shall include restoration plan in accordance with City of San Diego Standards.

PART 2 – NOT USED

PART 3 – EXECUTION

3.01 TRENCH RESURFACING

A. Where trench work for pipes, conduits, manholes, vaults, pull boxes, junction structures, and similar improvements requires removal of existing pavement within public streets to excavate the trench, such pavement shall be restored in accordance with the permit issued by the owner of the surface involved, or if restoration is not covered by permit, restoration shall be as provided in these Technical Specifications and the City of San Diego Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surfaced Streets" and SDG-108, "Trench Resurfacing for PCC Surfaced Streets." The City Standard Specifications shall govern all work shown on the referenced City Standard Drawings unless otherwise specified herein.

B. Where trenching occurs in areas other than public streets and surface treatment is not asphalt or concrete resurfacing material shall match existing surface material and section unless otherwise indicated on the Plans or as directed by the Engineer.

C. Whenever excavation is made through pavement, sidewalk, driveway or drainage ditch, temporary bituminous resurfacing two inches thick shall be placed and maintained according to Section 306-1.5.1, "Temporary Resurfacing," of the SSPWC unless permanent pavement is placed within 24 hours after backfill of trench.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for trench resurfacing.

4.02 PAYMENT

A. Full compensation for trench resurfacing shall be considered as included in the contract unit prices paid for the various items of work requiring trench resurfacing and no separate payment will be made.

END OF SECTION

SECTION 32 11 16
AGGREGATE BASE

PART 1 – GENERAL

1.01 SUMMARY

A. This Section specifies the material and work requirements for aggregate base to be furnished and place to the lines, grades, and dimensions in accordance with the Plans, Specifications and as directed by the Engineer.

1.02 REFERENCES

A. City of San Diego Standard Specifications (Green Book), Current Edition

B. City of San Diego Standard Specifications (White Book), Current Edition

C. City of San Diego Standard Plans, Current Edition

D. San Diego Regional Standard Plans, Current Edition

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

PART 2 – PRODUCTS

2.01 AGGREGATE BASE

A. Class 2 aggregate base shall be ¾" maximum and shall conform to the provisions in Section 200-2.9, "Class 2 Aggregate Bases," of the SSPWC and these Technical Specifications.

PART 3 – EXECUTION

3.01 AGGREGATE BASE

A. Aggregate base shall be of the type indicated and placed to the limits shown on the plans.

1. ¾" Class 2 Base
2. The use of reclaimed and recycled material is permitted on this project in accordance with the Standard Specifications. Reclaimed and recycled material shall not be placed at locations where surfacing will not be placed over the aggregate base.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for ¾" Class 2 Base.

4.02 PAYMENT

A. Full compensation for ¾" Class 2 Base shall be considered included in the contract prices paid for the various related items of work and no separate payment will be made.

END OF SECTION

SECTION 32 12 00
HOT MIX ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Work covered by this Section includes preparation, placement and compaction of all asphaltic concrete and slurry seal the existing pavement. It includes the prime coat, tack coat, base course and wearing course.

B. Related Specification Sections include but are not necessarily limited to:

1. Section 32 16 00 – Curbs, Gutters, and Sidewalks

2. Section 34 11 27 - Sub-Ballast and Aggregate Base

3. Section 34 71 50 – Highway-Rail Grade Crossings

1.02 REFERENCES

A. Comply with the following Specifications, standards and recommended practices, except as otherwise indicated.

1. SSPWC: Standard Specifications for Public Works Construction 2012, Section 2009, Section 203, Bituminous Materials, and 302, Roadway Surfacing

2. SSPWC: Standard Specifications for Public Works Construction 2012, Section 203-5, and Section 302-4, Emulsion – Aggregate Slurry (slurry seal).

B. Caltrans: State of California Department of Transportation Standard Specifications, Section 39

C. ASTM: American Society for Testing and Materials

1. D2950, Standard Test Method for Density of Asphalt Mixtures in Place by Nuclear Methods

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements**.**

B. The Contractor shall submit a job mix formula at the pre-construction meeting for review by the CM Team for each source of supply and type of mixture specified. The job mix formula shall indicate the percentage passing each specified sieve

size and the percent of asphalt to be used for each asphalt concrete mixture to be incorporated in the work.

C. Submittals shall include, but not be limited to:

1. Manufacturer's installation instructions.

2. Asphalt design mix

3. Emulsion – Aggregate Slurry Design Mix.

4. Test reports from an independent laboratory for materials and mix designs or proof that mix designs and all Materials are currently approved for use as asphaltic concrete pavement by Caltrans.

5. Tests reports for field density tests performed after placement and compaction of each course of asphaltic concrete.

6. List of equipment to be used for the placing, spreading and compaction of the Hot Mix Asphalt Pavement. Only equipment approved by the Engineer shall be used.

1.04 DELIVERABLES

A. Submit records of delivery of asphalt materials, identifying shipment numbers, dates and quantities, material designations and temperature at the time of placement.

B. Submit copies of aggregate tests, penetrations of asphalt cement, and percentages by weight and number of pounds of each of the materials making up the batch.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Asphalts

1. Asphalt binder to be mixed with aggregate shall be steam-refined paving asphalt of the grade designated in the special provisions.

   a. The asphalt binder shall be in conformance with Section 203 of the Public Works Specifications "GREENBOOK."

2. The amount of asphalt binder to be mixed with aggregate for asphalt concrete shall be in conformance with the requirements of Section 203 of the Public Works Specifications "GREENBOOK."

3. All areas to be paved shall receive prime coat. Prime coat shall be slow curing (SC-70) in accordance with Section 203-2 of the Public Works

Specifications “GREENBOOK.”

4. Asphaltic emulsion for the tack coat shall be of the grade designated by the Engineer.

    a. The asphaltic emulsion shall be in conformance with Section 203-1 of the Public Works Specifications “GREENBOOK.”

5. Paving asphalt to be used as a binder for pavement reinforcing fabric shall be steam-refined Pavement asphalt.

    a. The Pavement asphalt shall be PG 70-10.

B. Aggregate

1. Aggregate shall be clean and free from decomposed materials, organic material and other deleterious substances.

    a. Coarse aggregate shall be material that is retained on the No. 4 sieve.

    b. Fine aggregate shall be material that is passing the No. 4 sieve.

    c. Supplemental fine aggregate is added fine material passing the No. 30 sieve, including, but not limited to, cement and stored fines from dust collectors.

2. Aggregate shall be in accordance with Sections 400-1.1 and 400-1.2 of the Public Works Specifications “GREENBOOK.” Aggregate shall be asbestos-free.
3. HMA pavement shall be Type A with ½” maximum, coarse aggregate gradation.

C. Prime Coat

1. Prime coat shall be slow curing (SC-70) in accordance with Section 203-2 of the Public Works Specifications “GREENBOOK.”

D. Tack Coat

1. Tack coat shall be a liquid asphalt Type SS-1, in accordance with Section 203-3 of the Public Works Specifications “GREENBOOK.”

E. Emulsion – Aggregate Slurry

1. Emulsion – Aggregate slurry shall be of a slow-set or quick set type, in accordance with Section 203-3 5.2 of the Public Works Specifications “GREENBOOK.”

2.02 SOURCE QUALITY CONTROL

A. Take the following aggregate samples in the presence of the Engineer.

1. A 75-pound sample of representative aggregate retained on the #4 sieve and

2. A 3-pound sample of the representative aggregate passing the #4 sieve for testing of aggregate quality.

B. Provide Engineer access for sampling stockpiles, hot bin analyses, and other tests.

PART 3 - EXECUTION

3.01 GENERAL

A. Subgrade, aggregate base, curbs, gutters, and drains shall be approved by the Engineer before asphalt-Pavement operations are started.

B. Emulsion – Aggregate slurry shall be in accordance with Section 203-5 of the Public Works Specifications “GREENBOOK.”

C. Mixing plants shall in accordance with Section 203-6 of the Public Works Specifications “GREENBOOK.”

D. Verify utility locations prior to driving stakes or pins.

E. Construction procedures and requirements shall be in accordance with Section 302-5 of the Public Works Specifications “GREENBOOK.”

F. Legally dispose of all waste material produced as a result of Contractor’s operations. All waste Materials shall be removed from the MTS property within 2 weeks of it being made waste. If necessary to protect the existing soils from contamination, install an impermeable barrier to protect the existing subgrade and runoff.

3.02 FIELD QUALITY CONTROL

A. Density of asphaltic concrete shall be measured using nuclear density methods in accordance with ASTM D 2950 at the time of placement.

B. Density tests shall be performed by the Contractor’s independent laboratory. The Engineer may also perform testing at random selected locations. Number of cores shall be one core per 500 square yards of bituminous pavements or two cores per shift, whichever is greater. Repair core holes promptly using the same mix that was cored; where cores are taken through both base course and surface course simultaneously, use surface course mix for repair work. Wherever deficient pavement is discovered, take such additional cores as directed.

3.03 PREPARATION

A. When placing HMA for access road paving, provide an aggregate base course in accordance with Section 34 11 27 Sub-Ballast and Aggregate Base.

B. Schedule placement of asphalt pavement material when the precipitation probability, within 3 hours prior to the start of such operations, is less than 50 percent.

C. Laying of HMA shall not be permitted in wet weather.

D. Spreading of HMA shall not be permitted when the mixing temperature of HMA is below 250˚ F.

E. HMA shall only be placed when the atmospheric temperature is above 50˚ F.

F. When HMA is to be placed on an existing asphalt concrete, concrete, or brick surface, broom the existing surface clean prior to the application of the tack coat.

G. Repair holes and depressions in existing surfaces by removal to sound material and replace with an asphalt-aggregate patching material.

H. Compact patch to produce a tight surface conforming to the adjacent paving area.

I. Stabilize rocking Portland cement concrete slabs by undersealing or cracking and seating.

J. Fill wide joints and cracks with asphalt concrete/sand mix material and compact.

3.04 SPREADING

A. The depositing, distributing, and spreading of the HMA shall be accomplished in a single, continuous operation by means of a mechanical spreader or a grader.

B. The prime coat shall be applied at a rate of 0.25 gal/sq yd and shall be in conformance with the Caltrans Standard Specifications, Section 39.

C. The tack coat shall be applied in one application at a rate of 0.02 gal to 0.10 gal/sq yd of surface covered and shall be in accordance with Section 203 of the Public Works Specifications “GREENBOOK.”

D. Following application of the tack coat, the HMA shall be spread in accordance with Section 203 of the Public Works Specifications “GREENBOOK.”

1. Successive lifts may be laid upon previously laid lifts as soon as the previous lift has cooled sufficiently to show no displacement under equipment or loaded material delivery trucks.

3.05 COMPACTION

A. Rollers

1. Steel-wheeled, tandem type power driven rollers shall provide a pressure of not less than 225 lbs/in width of main roll.

    a. Rolls shall be smooth and without flat spots or other imperfections.

2. Pneumatic rubber-tired rollers shall be self-propelled with wheels mounted, grouped and spaced to provide uniform coverage with each pass.

    a. Rear group wheels shall not follow the tracks of forward group wheels.

    b. Maximum wheel load shall be 5,600 lbs.

    c. Tire compression on pavement, where the area of contact is measured on a hard, unyielding surface, shall be 80 psi plus five (5) psi for each wheel.

    d. The total maximum load per axle, whether single axle or a group of axles in the same alignment, shall be 22,400 lbs.

    e. Wheel loads and tire pressures shall be controlled to produce the required degree of compaction without rutting of the surface to be rolled.

B. Rolling

1. Proceed continuously at the following rates:

    a. For HMA Pavement, when spread by hand, not in excess of 300 sq yd/hr, per roller.

    b. For HMA Pavement, when spread by machine, not in excess of 400 sq yd/hr, per roller.

2. Immediately after spreading, thoroughly compact by rolling with approved rollers continuously from commencement to final completion at a speed not exceeding three (3) miles per hours.

3. Make initial rolling, using tandem type rollers, parallel to the center line of the paved surface beginning at the curbs or edges of the paved surface and working toward the center, overlapping on successive trips by one-half the rear wheel roller.

    a. Immediately following the initial rolling, further compact by pneumatic rubber-tired rollers or steel wheel vibratory tandem type rollers a minimum of eight (8) passes, except flexible pavement track underlay which shall receive four (4) passes.

    b. Smooth shallow ruts and ridges with tandem rollers immediately following the rubber-tired rolling.

4. First make final roll longitudinally with the paved surface and then diagonally or at right angles.

    a. Continue until further compression results; the mixture has cooled; no marks show under the roller, and the surface is smooth and free from depressions, waves, bunches, and unevenness.

5. Test after the mixture has been rolled with approved straight edge and surface testing machine laid parallel to the centerline of the paved surface.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Prime Coat and Tack Coat will not be measured for payment. Costs associated with the prime or tack coats will be considered as incidental to the Hot Mix Asphalt Pavement.

B. Hot Mix Asphalt Pavement will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Hot Mix Asphalt Pavement constructed in accordance with the Contract Documents will be paid for at the Contract Unit Price as included on the approved Bid Price Form or approved schedule of values. This price shall be full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals necessary for Hot Mix Asphalt Pavement described by the Contract Documents.

END OF SECTION

SECTION 32 16 00
CURBS, GUTTERS, AND SIDEWALKS

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This Section consists of furnishing all labor, materials, and equipment necessary, and incidental to the manufacture, transport and placement of the curbs and gutters, related material and providing all associated items.

1.02 REFERENCES

A. SSPWC: Standard Specifications for Public Works Construction 2012, Sections 201-1, Portland Cement Concrete, 201-3, Expansion Joint Filler and Joint Sealants, and 303-5, Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps, Bus Pads, Local Depression, Concrete Apron and Driveways

B. Caltrans: State of California Department of Transportation Standard Plans, Current Edition

C. CPUC General Orders 26D and 118.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. The following information shall be submitted:

1. Compliance: Concrete mix and materials, test reports, Manufacturer or Supplier's certification that materials delivered to site are in compliance with Specifications.

2. Samples: Sampling and testing for compliance with the Contract Provisions shall be in accordance with SSPWC 2012 Section 201-1.1.

PART 2 – PRODUCTS

2.01 PORTLAND CEMENT CONCRETE

A. Portland cement concrete for the construction of curbs and gutters shall conform to SSPWC 2012 Section 201-1.

B. The minimum 28-day compressive strength shall be 3250 psi (560-C-3250 – SSPWC) unless otherwise shown on the Plans.

2.02 REINFORCEMENT

A. Reinforcing chairs shall be plastic or concrete.

2.03 JOINT FILLER

A. Premolded joint fillers shall conform to SSPWC 2012, Section 201-3.2.

PART 3 – EXECUTION

3.01 GENERAL

A. Establish and maintain required lines and elevations. Make gradual and smooth transitions to pavements.

3.02 ZERO FACE CURBS

A. Curb face shall be tapered to zero height within 10 feet of track centerline in order to comply with walkway requirements provision of CPUC General Order 118.

3.03 EXTRUDED PORTLAND CEMENT CONCRETE CURBS

A. Concrete curbs and gutters shall be constructed of Portland cement concrete of the class and other requirements specified in Section 303-5 of the SSPWC.

B. For curbs constructed on existing paving, refer to the Contract Documents for specific details and requirements for attaching curbs to existing paving.

C. Space joints in extruded curbs to match joints in adjacent paving. When the adjacent paving is not jointed, locate joints at angles, corners, points of curvature, and points of tangency at intervals of not more than 15 feet.

D. Joints shall be 1/8 inches minimum thickness and constructed to a minimum depth of 1 inch by scoring with a tool which will leave the corners rounded and destroy aggregate interlock to a depth of 1 inch.

E. Place expansion joints filler to full cross-section with 1/4 inches thick filler in the curb at abutting structures and at 100 foot intervals.

F. Cure the extruded concrete for not less than 72 hours.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Concrete curbs, curb and gutters, and sidewalks will be measured by the unit or fraction thereof constructed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved Schedule of Values as derived from the plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Concrete curbs, curb and gutters, and sidewalks constructed in accordance with the Contract Documents will be paid for at the contract unit price as listed in the Bid Price Form. This price shall be full compensation for furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals necessary for concrete curbs, gutters and sidewalks described by the Contract Documents.

END OF SECTION

SECTION 32 17 23
PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Work involves furnishing all labor, materials, and equipment necessary and incidental to applying pavement and platform striping, markings, markers, and painting of curbs.

1.02 REFERENCES

A. Comply with the following Specifications, standards, and recommended practices, except as otherwise indicated:

1. Caltrans: State of California Department of Transportation, Standard Specifications Current or Latest Edition, Section 84.

2. Caltrans: State of California Department of Transportation, Standard Specifications Current or Latest Edition, Section 85.

3. Caltrans: State of California Department of Transportation, Traffic Manual; California Manual on Uniform Traffic Control Devices, latest edition, Part 3, Chapter 3A and 3B.

4. CCR, Title 24: California Code of Regulations: California State Building Code.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit Manufacturer's or Supplier's certification that the materials delivered to the site are in compliance with the Specifications as specified in this Section.

1.04 QUALITY ASSURANCE

A. Pavement striping, markings, and markers shall be applied by workers with proven skills required to perform the work in accordance with the correct location, alignment, and dimensions of the striping and markings as shown in the CA MUTCD.

B. At no additional cost to MTS, the Contractor shall repair or replace pavement markings which fail to present a uniform appearance and those, which are marred and damaged by traffic and by other causes.

C. Until accepted by the Engineer, the Contractor shall be responsible for the maintenance of all pavement striping, markings, and markers until the roadway is open to vehicular traffic.

D. All pavement striping and marking for roadways, whether temporary or permanent shall be completed before the roadway is opened for vehicular traffic.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Paint for traffic striping and markings shall comply with Caltrans Standard Specifications Current or Latest Edition Section 84-3. The type of paint shall either be Fast Dry or Rapid Dry solvent borne. Thermoplastic traffic stripes and pavement markings shall comply with Caltrans Standard Specifications Section 84-2. Markers shall comply with Standard Specifications Section 85-1.02.

2.02 COLOR

A. Color for roadways shall be Caltrans Standard Specifications "white" and “yellow” unless otherwise indicated in the Contract Plans.

B. Painting of curbs shall use the color indicated.

PART 3 - EXECUTION

3.01 GENERAL

A. Apply paint by using a striping machine, except for special areas and markings, which are inaccessible or not adaptable to machine application, in which case hand application will be permitted with approved masking or stencil use.

B. The striping machine shall be an approved spray-type marking machine capable of producing the specified dimensions of the markings and stripings with clear-cut edges and uniform smooth film thickness.

C. The minimum wet film thickness of the paint shall be 15 mils or in accordance with the manufacturer's recommendation and approved by the Engineer.

D. Application of the paint shall be made only on a dry and clean surface free from grease, oils, dirt, curing compound or any other foreign matter, when the weather is not windy and humid, and the ambient air temperature is not less than 40 Deg F. Contractor shall not apply paint to uncured concrete.

E. Placement of pavement markers shall comply with Caltrans Standard Specifications Section 85-1.03.

F. Contractor shall clean up all overspray with approved Materials and leave a clean and complete project.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. Pavement Markings will be measured by the unit or fraction thereof furnished and placed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved Schedule of Values as derived from the plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Unless otherwise stated full compensation for complying with the requirements of this Section shall be considered as included in the contract prices paid for the various items of work involved, unless otherwise stated, and no additional compensation will be allowed therefore.

B. Pavement Markings completed in accordance with the Contract Documents will be paid for at the contract unit price, as listed in the Bid Price Form. This price shall be full compensation for furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals necessary for Pavement Markings described by the Contract Documents.

END OF SECTION

SECTION 32 31 13
CHAIN LINK FENCING AND GATES

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This Section includes chain link fencing and gates including the chain-link fence fabric and posts, concrete for post bases, rails, ties, bands, bars, rods and other fittings and hardware designed to support the fabric in a vertical, taut position.

1.02 REFERENCES

A. ASTM International (ASTM)

1. A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

2. A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

3. A392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.

4. A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

5. A501 Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing

6. A824, Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for use with Chain-Link Fence.

7. F552, Standard Terminology Relating to Chain-Link Fencing

8. F567, Standard Practice for Installation of Chain Link Fence

9. F626, Standard Specification for Fence Fittings

10. F900, Standard Specification for Industrial and Commercial Steel Swing Gates

11. F1043, Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework.

12. F1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.

B. Chain Link Manufacturer's Institute for "Galvanized Steel Chain Link Fence Fabric and Accessories”

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Product technical data shall be submitted including, but not limited to:

1. Acknowledgement that products submitted meet requirements of standards referenced.

2. Manufacturer's installation instructions

C. Shop Drawings

1. Scaled plan layout showing spacing of components, accessories, fittings, and post anchorage.

2. Details of fence materials, foundations, anchorage details and gate details.

3. Source quality control test results.

1.04 QUALITY ASSURANCE

A. Qualifications

1. Installer shall have a minimum two (2) years of experience installing similar fencing.

2. Utilize only AWS certified welders.

B. Construct fence within reasonably close conformity to lines and grades shown on the Plans and at the locations as directed by the Engineer.

PART 2 – PRODUCTS

2.01 COMPONENTS

A. Components for Chain Link Fencing shall conform to LOSSAN Engineering Standard ESD-5106, R.O.W. Fence Details (Chain Link) and these Specifications.

B. Chain Link Fabric

1. ASTM A392 zinc-coated steel, coating before weaving, 2.0 oz/sf.

2. Wire gage shall be 11-gage for fences 6 feet-0 inches and less and 9 - gage for fences over 6 feet - 0 inches in accordance with the Contract Plans or as determined by the Engineer based on field conditions in accordance with LOSSAN Engineering Standard ESD-5106.

3. Mesh size shall be 1 inch.

4. Top and Bottom selvage treatment shall be knuckled.

C. Concrete

1. Minimum cement content shall be 560 lbs/cu. yd.

2. Minimum 28-day compressive strength shall be 3,250 psi.

D. Line Post, Corner or Terminal Posts, Brace and Rails

1. ASTM F1083 pipe

a. Table 1, Schedule 40, regular grade, in sizes as specified on LOSSAN Engineering Standard ESD-5106.

E. Tension Wire and Bars

1. Top and bottom of fabric

a. ASTM A824, galvanized steel, Class 3.

b. Minimum 7-gage galvanized coil spring steel wire.

2. Tension bars used in fastening fabric to end and corner posts and gate frames.

a. ASTM A500 or A501, minimum 3/16 inches x 3/4 inches galvanized high carbon steel bars.

F. Fence Fittings (Post and Line Caps, Rail and Brace Ends, Sleeves-Top Rail, Tie Wires and Clips, Tension and Brace Bands, Tension Bars, Truss Rods).
1. ASTM F626
2. Tie wires shall not be smaller than 11 gage galvanized steel, 6 gage aluminum wire or approved noncorrosive bands.
3. Truss or tension rods shall be adjustable 3/8 inches dia. galvanized steel rod.
   a. Adjustable galvanized turnbuckles or other suitable tightening devices shall be provided as necessary.

G. Security Gate

1. ASTM F900

a. Gate posts in sizes as shown in LOSSAN Engineering Standard ESD-5106.

2. Materials as specified for fence framework and fabric.

3. Hardware

a. Galvanized per ASTM A153

b. Hinges to permit gate opening as shown in the plans.

4. Hang gates on at least two (2) steel or malleable iron hinges not less than 3-inches in width, designed to clamp to the gate post and permit the gate to be swung as indicated in the plans. The bottom hinge shall have a socket to take the ball end of the gate frame.

5. Gates shall be provided with a combination steel or malleable iron catch and locking attachment system of approved design which will not rotate around the latch post.

6. Stops to hold gates open and a center rest with catch shall be provided where required.

H. Security Extension

1. Extension arms for barbed wire shall be a type that can be attached to the tops of posts and carry three wire at approximately 5-1/2 inches centers.

2. Barbed wire shall be four-point pattern, composed of:

a. Two strand, 12-1/2 gage galvanized steel wire.

b. Barbs spaced at 5 inch centers

c. Conform to ASTM A121

2.02 SOURCE QUALITY CONTROL

A. Test related fence construction materials to meet the following standards.

1. Posts and rails, ASTM F1043, Heavy Industrial

2. Results of tests to be submitted with material certification submittals

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with:

1. Manufacturer instructions

2. Lines and grades shown on approved Plans

3. In accordance with ASTM F567

4. In accordance with LOSSAN Engineering Standard ESD-5106

B. In case of conflict between four above mentioned installation procedures, LOSSAN Engineering Standard ESD-5106 takes precedence; use in lieu of conflicting portions.

C. Work shall be performed by workmen who are thoroughly trained and experienced in the skills required to install the products of this Section.

D. Do not start fence installation before final grading is complete and finish elevations are established.

E. Drill holes for posts in firm, undisturbed or compacted soil.

F. Posts shall be placed in a vertical position, except as directed by the Engineer where they may be set perpendicular to the ground surface.

G. Posts shall be set in concrete footings conforming to the details shown on LOSSAN Engineering Standard ESD-5106 and crowned at the top to shed water.

H. Place fence with bottom edge of fabric at maximum clearance above grade, as shown on Plans.

1. Correct minor irregularities in earth to maintain maximum clearance.

I. Space line posts at equal intervals not exceeding 10 feet on center.

J. Provide post braces for each gate, corner, pull and terminal post and first adjacent line post.

K. Install tension bars full height of fabric.

1. Fit rails with expansion couplings of outside sleeve type when called for in plans.

2. Install rails continuous for outside sleeve type for full length of fence.

3. Provide expansion couplings in top rails at not more than 20-foot intervals.

4. Anchor top rails to main posts with appropriate wrought or malleable fittings.

L. Install bracing assemblies at all end and gate posts, as well as side, corner, and pull posts.

1. Locate compression members at mid-height of fabric.

2. Extend diagonal tension members from compression members to bases of posts.

3. Install so that posts are plumb when under correct tension.

M. Pull fabric taut and secure to posts and rails.

1. Secure so that fabric remains in tension after pulling force is released.

2. Secure to posts at not over 15 inches on-center, and to rails at not over 24- inches on-center, and to tension wire at not over 24-inches on-center.

3. Use U-shaped wire conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least two (2) full turns.

4. Bend ends of wire to minimize hazards to persons or clothing.

5. Fabric shall be placed on the outside of poles away from the track or as directed by the Engineer.

N. Install post top at each post

O. Gates

1. Construct with fittings or by welding.

2. Provide rigid, weatherproof joints.

3. Assure right, non-sagging, non-twisting gate.

4. Coat welds with rust preventive paint, color to match pipe.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Chain link fencing and gates will be measured by the unit or fraction thereof constructed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved Schedule of Values as derived from the plans will be used as the basis for this measurement.

B. Chain Link Gates will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

C. Quantities of gates will be determined from actual count. When more than one gate is placed in an opening, each single unit placed will be counted as a gate. A gate unit complete shall include one gate with necessary fittings, hardware and gate posts with braces.

D. Chain Link Fencing and gates shall consist of a fabric, including posts, horizontal members, post anchorages, stretcher bars, tension wires and other required hardware and fittings, as shown on the Contract Documents.

4.02 PAYMENT

A. Chain Link Fencing and Chain Link Gates furnished and completed in accordance with the Civil Sections of the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

B. Chain Link Fencing and Chain Link Gates furnished and completed in accordance with the Signal Section shall be included in the lump sum contract price paid for that location's Signal Location Complete. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

C. Full compensation for furnishing and installing connections on Fencing and Gates, drilling anchor bolt holes and bolts shall be considered as included in the prices and no additional compensation will be allowed.

D. Full compensation for furnishing and installing fabric, posts, post tops, tension wires, post clips, wire ties and hog rings shall be considered as included in the prices and no additional compensation will be allowed.

E. Full compensation for clearing the line of the fence and disposing of the material, excavating high points in the existing ground, excavating and backfilling holes, disposing of surplus excavated material, and furnishing and placing concrete footings and connecting new fences to structures and existing cross fencing, and constructing temporary fences for protection of stock, shall be considered as included as listed on the Bid Price Form.

END OF SECTION

SECTION 32 32 16

GRAVITY BLOCK RETAINING WALLS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work involves furnishing all labor, materials, and equipment necessary and incidental to constructing gravity block retaining walls to the limits and at the locations shown on the Contract Drawings and as modified by the Engineer. This work consists of furnishing and constructing gravity block retaining walls of prefabricated modular units at locations shown or as directed by the Engineer, and in close conformity to the lines, grades, and dimensions shown or established.

B. Earthwork shall conform to the provisions in Section 300, “Earthwork,” of the SSPWC, the Technical Specifications, and the General and Special Conditions.

C. Sections include, but are not limited to:

1. Section 03 21 00 - Reinforcing Steel
2. Section 03 31 00 – Structural Concrete
3. Section 32 31 13 - Chain Link Fencing and Gates
4. Section 33 42 00 –Culvert and Drainage Pipe
5. Section 34 11 27 – Sub-ballast and Aggregate Base

1.02 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Shop drawings showing wall materials and construction details as provided by the supplier of the wall system. Drawings are to be certified by a qualified Engineer licensed in the State of California, and shall be suitable for obtaining City permits, as necessary.

C. Contractor shall prepare and submit a wall layout drawing that provides details of the wall layout and sections developed with input from manufacturer of the wall system. A layout drawing shall be provided for each wall location.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Approved retaining wall systems, meeting these specifications are:

1. Enviro-Block by inter-Block Retaining Systems, Valley Center, CA.

Telephone: 800-406-2066

2. Approved equal gravity retaining wall systems providing a pinned or interlocked type construction.

B. Blocks are to be standard grade, gray color with smooth face finish, unless noted otherwise.

C. Blocks shall be sound and free of cracks or other defects that would interfere with the proper placement of the block or significantly impair construction of the wall.

D. Block face exposed to view shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused light.

E. Tolerance - Molded dimensions are not to differ more than 1/4 inch from the manufacturer's published dimensions, except height, which is not to differ more than 1/8 inch.

F. Geotextile fabric shall be Mirafi "Filterweave 404" or approved equivalent.

2.02 ACCEPTANCE OF BLOCKS

A. Acceptability will be determined based on tolerances specified in Section 2.01 of this section and visual inspection. Any one of the following defects will be cause for rejection:

1. Concrete not suitable for common structural applications, Imperfect molding, misshapen, or deformed blocks.

2. Honeycombed or open texture concrete.

3. Broken, cracked or chipped blocks.

4. Extreme color variation on visible face of block.

2.03 DELIVERY, HANDLING, AND STORAGE

A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification have been received.

B. Contractor shall protect all materials from damage due to jobsite conditions in accordance with manufacturer's recommendations.

C. Damaged materials shall not be incorporated into the work.

PART 3 - EXECUTION

3.01 PREPARATION

A. Excavate existing material as needed to construct the wall as detailed on the plans.

B. Prepare the subgrade in accordance with manufacturer's recommendations.

3.02 GRAVITY BLOCK RETAINING WALL CONSTRUCTION

A. Preparation

1. Place geotextile fabric over the full width and sides of the zone of unsuitable subgrade over excavation. Geotextile shall be laid smooth without wrinkles or folds in accordance with the manufacturer's directions. Joints or overlaps are not allowed along the width of the excavation. Adjacent rolls of geotextile shall have a minimum overlap of 40 inches in the longitudinal direction. There shall be no wheeled or tracked equipment permitted on the unprotected geotextile fabric.

2. The zone of over excavation shall be backfilled with Class 2 Crushed Aggregate Base (CAB) conforming to Section 34 11 27. An initial 6 to 12 inches of CAB shall be uniformly placed over the geotextile fabric as a protective covering. This initial protective layer shall not be compacted. Once the Engineer has determined that a stable condition has been achieved, the remaining CAB shall be placed in 8 to 10 inch lifts and compacted to 95% relative compaction at optimum moisture content (ASTM D 1557). Wheeled or tracked compaction equipment shall not be used until 24 inches of CAB has been placed on top of the geotextile fabric. The geotextile fabric at the sides of the excavation shall be protected from damage throughout the placement and compaction of the CAB. Damaged geotextile shall be repaired at the direction of the Engineer at no cost to MTS.

3. The top of the backfill shall be shaped to a slope to match the base of the lowest block. Each block shall be placed with full contact with the compacted base at the angle indicated on the approved submittal.

B. Block Installation and Backfill Placement

1. Blocks shall typically be placed in a running bond pattern unless placed perpendicular to the face of the wall. Place blocks so the final position is battered as shown.

2. Place the first course of blocks on top of and in full contact with the prepared base pad surface.

C. Install drain pipe filter fabric and pervious rock in accordance with the plans and Section 33 46 00.

D. Closely follow erection of each course of blocks with placement of Embankment Fill (face opposite track) and drainage/subballast material (face on trackside). Remove excess backfill from the top of the blocks prior to installing the next course of blocks. Clean, free draining backfill and structural backfill to be as specified on the approved shop drawing.

E. During construction of the wall and placement of blocks maintain a vertical tolerance and tangent horizontal alignment tolerance of not more than 1-1/8 inch when measured with a 10-foot straight edge. Check the batter and tolerances of each course of blocks before erecting the next course.

F. Maximum horizontal gap shall be plus or minus 1 inch.

G. Grade embankment at top of wall in accordance with the plans.

H. Install fencing as indicated on the plans.

3.03 GRAVITY BLOCK WALL CONSTRUCTION (SMALL BLOCKS)

A. Prepare subgrade in accordance with manufacturer's recommendations, at a minimum over excavate and compact 6 inches below leveling pad.

B. Place leveling pad as indicated on manufacturer's drawings or as called for in plans or specifications.

C. Walls shall be installed in accordance with manufacturer's shop drawings and standard details, with the addition of geotextile fabric as described above.

D. Grade embankment at top of wall in accordance with the plans.

E. Install fencing as indicated on the plans.

F. Maximum horizontal gap shall be plus or minus ½ inch.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. No separate measure will be made for Gravity Block Retaining Wall.

4.02 PAYMENT

A. Full compensation for Gravity Block Retaining Walls shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

B. "CMU Retaining Wall", constructed in place in accordance with the Civil Sections of the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer

END OF SECTION

SECTION 33 42 00
CULVERT AND DRAINAGE PIPE

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. The Work in this Section consists of furnishing all labor, materials and equipment necessary and incidental to providing culverts (headwalls, flumes, end sections), storm drainage systems (headwalls, storm drain pipe, cleanouts, connections, risers), and storm drain appurtenances (concrete collars, brick and mortar plugs, concrete caps).

B. Earthwork shall conform to the provisions in Section 300, “Earthwork,” of the SSPWC, the Technical Specifications, and the General and Special Conditions.

1.02 RELATED SECTIONS

A. Section 31 11 50 – Demolition, Cutting and Patching

B. Section 31 50 00 – Excavation Support

C. Section 34 11 27 – Sub-ballast and Aggregate Base

D. Section 03 31 00 – Structural Concrete

1.03 REFERENCES

A. American Railway Engineering and Maintenance of Way Association (AREMA) – Manual for Railway Engineering.

1. Chapter 1, Part 4, Section 4.3 Specifications for Prefabricated Corrugated Steel Pipe and Pipe Arches for Culverts, Strom Drains, and Underdrains.

2. Chapter 1, Part 4, Section 4.5, Standard Specification for Corrugated Aluminum Alloy Pipe.

3. Chapter 1 Part 4, Section 4.6, Specifications for Corrugated Structural Steel Plate Pipe, Pipe-Arches and Arches.

4. Chapter 8, Part 10, Reinforced Concrete Culvert Pipe.

5. Chapter 8, Part 16, Design and Construction of Reinforced Concrete Box Culverts.

B. American Association of State Highway and Transportation Officials (AASHTO).

1. M274, Steel Sheet, Aluminum Coated (Type 2), for corrugated steel pipe.

2. M252, Corrugated Polyethylene Drainage Pipe

3. M294 Corrugated Polyethylene Pipe

C. ASTM International (ASTM)

1. A31, Standard Specifications for Steel, Rivets and Bars for Rivets, Pressure Vessels.

2. A48, Standard Specifications for Gray Iron Castings.

3. A760, Corrugated Steel Pipe, Metallic Coated for Sewers and Drains.

4. A761, Corrugated Steel Structural Plate, Zinc-Coated, for Field –Bolted Pipe, Pipe-Arches, and Arches.

5. A780, Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

6. B633, Coating.

7. C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

8. C150, Standard Specifications for Portland Cement.

9. C361, Standard Specification for Reinforced Concrete Low-Head Pressure Pipe

10. C1784, Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe.

11. D2729, Standard Specification for Polyvinyl Chloride (PVC) Sewer Pipe and Fittings

12. D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Material.

D. Caltrans: State of California Department of Transportation Standard Plans and Specifications

E. Standard Plans for Public Works Construction (SSPWC) “Green Book”.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Plans and Procedures.

1. Piping Layout Plans

2. Schedules of work

3. Details for culverts and drainage structures and joints including Shop Drawings and installation procedures.

4. Proposed bedding test procedures.

C. Certificates

1. Culvert and Drainage Pipe test reports from the fabricator.

2. Submit test results for density and compaction tests of culvert bedding and backfill performed by certified test laboratory hired by the Contactor and approved by the Engineer to perform and report testing.

1.05 PROJECT SITE CONDITIONS

A. The Contractor shall barricade open excavations and post with warning lights those excavations occurring on property adjacent to or within public access areas and along tracks. Operate warning lights during hours from dusk to dawn each day and as otherwise required. Warning lights shall not shine into the eyes of LRV operators on oncoming trains.

B. The Contractor shall protect utilities, structures and facilities designated as protect in place from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation and backfill operations. Damage to utilities designed to remain must be repaired by the Contractor to the satisfaction of MTS.

C. Contractor shall dewater excavations as necessary to allow placement and compaction of bedding material, placement of culvert or drainage structure and placement and compaction of backfill.

1.06 ENVIRONMENTAL CONDITIONS

A. The Contractor shall protect against erosion and uncontrolled run-off within and adjacent to right-of-way.

B. The Contractor shall obtain all permits for and legally dispose of all water from water removal operations.

C. Contractor shall maintain the construction site and those areas impacted by construction.

D. Prevent disturbances and nuisances to the public, workers and occupants of adjacent premises and surrounding areas.

PART 2 – PRODUCTS

2.01 ACCETPABLE MANUFACTURERS OF JOINT SEALING MATERIAL

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable for joint sealing material between sections of precast reinforced concrete pipe or precast reinforce concrete box culverts when water tightness is not specified.

1. Preformed flexible pipe joint sealing compound

a. RAM-NEK

b. BIDCO C-56

c. Or Approved Equal

2.02 MATERIALS

A. Reinforced Concrete Pipe (RCP):

1. RCP shall not be used, unless approved by the Authority, when crossing below tracks and within the typical track section with 2:1 side slopes. If placed under the track, the pipe shall be able to withstand railroad loading.

2. Reinforced concrete culvert, storm drain and sewer pipe: RCP Joint Sealer.

a. Rubber gasket: ASTM C361 when water tight joints indicated in the Plans.

b. Joint sealing material per Article 2.01 above for other joints of concrete pipe.

3. Jointing: same as pipe.

B. Corrugated Metal Pipe (CMP) and Structural Plate Pipe (SPP):

1. CMP and Structural Plate Pipe may be used in all culvert or storm drainage applications.

2. CMP shall be either Class 1, annular rings with riveted seams or Class 2, helical rings with lock seams or welded seams per the AREMA Manual Chapter 1, Part 4, Section 4.3 Specifications for Prefabricated Corrugated Steel Pipe and Pipe Arches for Culverts, Storm Drains, and Underdrains. In addition to these requirements, CMP culverts shall meet the following:

a. CMP shall be coated in accordance with AASHTO M274, Steel Sheet, Aluminum Coated (Type 2), for corrugated metal pipe.

b. CMP over 48 inches diameter shall be fabricated with a 5 percent elongation in the vertical direction.

c. CMP Class 1 Culvert Riveted Seams:

1) CMP Class 1 culverts shall have riveted longitudinal seams with one rivet in each corrugation valley for all pipes 24 inches in diameter and smaller. Longitudinal seams shall be riveted with two rivets in each corrugation valley for all pipes larger than 24 inches. Circumferential seams shall be riveted with two rivets in each corrugation valley for all pipes larger than 24 inches. Circumferential seams shall be riveted with a maximum rivet spacing of 2 inches.

2) CMP Class I culverts shall have all 14 gage pipe with at least 5/16 IN DIA rivets. CMP Class I culverts shall have all 12 gage and thicker pipe with at least 7/16” dia. Rivets.

3) All rivets shall be cold driven in a workmanlike manner to completely fill the hole without bending.

4) Rivets shall conform to ASTM A31, Grade A and shall be electroplated in accordance with the Specifications of ASTM A164, Type RS.

d. CMP Class 2 Culvert Seams:

1) Lock Seams shall be either continuous welded in accordance with ASTM A 760 or lock seams in accordance with ASTM A 760 and the AREMA Manual for Railway Engineering, Chapter 1, Part 4.5.3.6.

3. Structural Plate Pipe

a. Structural Plate Pipe shall meet the requirements of AREMA Manual for Railway Engineering Chapter 1, Part 4.6.

1) Base metal shall be in accordance with ASTM A761.

2) Structural Steel Plates shall be coated in accordance with AASHTO M274, Aluminum Coated (Type 2) for corrugated steel pipe with thickness of coating in accordance with ASTM A761.

4. Jointing and End Finish

a. Corrugated connecting bands of same base metal, corrugations and finish coating as pipe.

b. Connection bands shall conform to Section 66-1.02D of the Caltrans Standard Specifications.

c. CMP Class 2, Helical, Culvert Joints shall be made by rerolling the ends of individual pipe sections at least four corrugations from the pipe end or 14 inches to meet the connection band requirements.

5. CMP Joint Sealer when culvert is under pressure or is used in an irrigation application.

a. Cold applied asphalt joint compound.

b. Preformed flexible pipe joint sealing compound.

6. Perforated CMP shall have perforations meeting requirements of ASTM A760 for Class 1 Perforations.

C. Corrugated High-Density Polyethylene Drainage Pipe:

1. Corrugated High Density Polyethylene Drainage Pipe may be used for under drains or other storm drainage not subject to railroad live loading.

2. Pipe and fittings shall be a high-density polyethylene meeting ASTM D3350 minimum cell classification 325420C.

3. Sizes less than 1 foot diameter shall meet requirements of AASHTO M252, Corrugated Polyethylene Drainage Pipe.

4. Sizes 1 foot up to 5 feet in diameter shall meet requirements of AASHTO M294, Corrugated Polyethylene Pipe 1 to 5 feet diameter.

D. Smooth Steel Pipe

1. Smooth Steel Pipe may be used for all culvert or storm drainage applications.

E. PVC Pipe

1. PVC may be used for under drains and storm drainage applications. When subjected to railroad live loading, Schedule 80 PVC pipe shall be used.

2. PVC Pipe shall meet the requirements of ASTM D1784, Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40 and 80. All fittings shall meet ASTM D2729.

3. Perforated PVC pipe shall have perforations meeting the requirements of ASTM D1784. Perforations shall be 3/8” dia.

F. Reinforced Concrete Box Culvert (Cast-in-Place or Precast) (RCB):

1. RCB may be used in all culvert or storm drainage applications.

2. Design shall be per AREMA Manual for Railway Engineering, Chapter 8, Part 16, Design and Construction of Reinforced Concrete Box Culverts.

G. Crushed Stone Bedding Material

1. Crushed Stone Bedding Material shall meet the requirements of Subballast contained in Section 34 11 27.

PART 3 – EXECUTION

3.01 PREPARATION

A. It shall be the Contractor's responsibility to verify the actual locations (horizontal and vertical) of all utilities prior to beginning trench excavation. If utilities are to remain in place, provide protection from damage during construction operations.

3.02 HANDLING OF MATERIAL

A. Pipe, fittings and supplementary items shall be handled in such a manner as not to damage the Material. All dirt and trash shall be removed from the pipe prior to installation. Damage to the pipe, pipe lining or coating, if any, shall be repaired to the satisfaction of MTS.

1. Repairs to damaged coating on CMP shall be made in accordance with ASTM A780 except the repaired area coating shall be modified for aluminum-zinc coated material.

B. Pipes or structural steel plate materials shall not be dropped to or dragged over the ground, but shall be handled with rolling slings on skids or with cranes.

C. Bent or otherwise damaged pipe materials shall not be used.

D. Distribute pipe and other materials along the line of Work and outside the trench as near as practical to the point of placement. Do not deposit site materials on or against the pipe.

E. Protect pipe ends until the pipe is placed in its final position.

3.03 INSTALLATION

A. Foundation Preparation

1. Excavate as necessary, prepare pipe bed pre-rolling and removing any unacceptable soil, place and compact Crushed Stone Bedding Material and Smooth Steel Pipe when not using jacking and boring installation methods for Reinforced Concrete Box Culverts.

2. The foundation shall be a smoothed and compacted surface conforming to bottom of pipe grade or camber and will hereafter be referred to as the foundation line. The foundation bed shall be free of boulders, tree stumps, cut-off piling, and other projections. Suitable camber to allow for settlement of pipe due to consolidation of embankment material will be provided when required. Shaping to pipe contour is not required.

3. When acceptable foundation material is present, the width of the foundation line shall be a minimum of 4 feet plus the pipe diameter or pipe-arch span. For multiple pipes the above width shall be increased by the sum of the distances between pipe or pipe-arch centers.

4. Where there is solid rock or other unsuitable material, such as boulders, or unstable material that may deform the pipe during minor settlement, at the foundation line, it will be necessary to provide suitable bedding for pipes. Such work will only be undertaken at the specified direction of the Engineer.

5. The width of excavation and bedding backfill shall be the pipe diameter or pipe-arch span in solid rock and boulders, and in other unsuitable material, the width shall be three pipe diameters or pipe-arch spans for single pipes, and for multiple pipes, this width shall be increased by the distances between pipe or pipe-arch centers.

6. Soft, spongy or otherwise unsuitable material encountered at the established and approved grade shall be removed and backfilled with granular material. Excavation of unsuitable soils will be made in accordance with the unit price for excavation. Payment for backfilling and compacting with suitable soils will be made at the contract unit price for embankment.

7. The Contractor must by diversion ditches, dikes, or other means, keep the foundations free of water at all times after the work is started, and until the embankment is placed over the pipe. Any channel work necessary to allow free flow through the pipe shall be completed before the embankment is placed. This work is incidental to installation of the culvert or drainage pipe.

B. Placing Culvert or Drain Pipe

1. No pipe shall be laid until it has been inspected and approved. All pipes shall be laid upgrade beginning at the lower end of the line. Pipe shall be laid accurately to line and grade. Ensure that the pipe has a full solid bearing along its entire length. When pipe has been checked for line and grade, the body of the pipe shall be sufficiently backfilled and compacted on both sides to hold the pipe firmly in position.

2. All adjustments to line and grade of the pipe laid on earth foundation shall be done by removal or filling of the bedding under the pipe and not by blocking or wedging.

3. Where two or more pipes are used, there shall be a minimum of 3 feet, or 1/2 pipe diameter or pipe-arch span, clear distance apart, whichever is greater. Where practicable, in the opinion of the Engineer, a space of 10 feet may be provided between pipes to facilitate the compaction of fill material around the pipes with heavy equipment.

4. Placing CMP

   a. Pipe having riveted seams shall be laid with outside laps of circumferential joints pointing upstream, longitudinal laps on the sides and, when shown in the Project Plans, asphalt paving on the flow line.

b. Pipe sections shall be firmly joined together with connecting bands. All dirt or other foreign materials must be kept out from between pipe and band. Outside connecting bands should be slipped over the end of one section, and the adjoining section brought within 1 inch of the first. Band shall be made to fit snugly and equally on each pipe section and bolted to produce a tight joint. The lower half of two-piece connecting bands for pipe having riveted seams may be furnished already connected to one of the pipe sections, and in such cases the end having the fixed half band shall be placed downstream. Band couplers and ends of pipe under the bands may be lubricated with oil or solvent, which has been approved by the Engineer. Excess asphalt at joints may be removed by an application of heat, if necessary. Where corrugated pipe is to be placed in an irrigation ditch, continuous waterway or spring area, rubber gaskets shall be placed around the first re-rolled corrugation at each end of the pipe before the band is placed to keep the joint watertight.

c. At locations where the existing corrugated pipe is to be extended with new pipe, the joining end of the existing pipe shall be free of breaks, cracks or other defects. If in the judgment of the Engineer the end of the existing corrugated pipe is not suitable for making a proper joint, the Contractor must, as directed by the Engineer, remove or trim the amount of pipe necessary to allow making of an approved joint. Such removal and trimming will be considered incidental to the cost of the pipe and no direct payment will be made therefore.

d. Pipe-arches shall not be strutted.

e. Identification tag, supplied by manufacturer, shall be attached near top of and inside of pipe at upstream end.

f. Corrugated pipe shall be field strutted by the Contractor using Contractor supplied material when the distance from the base of rail to the top of pipe will be less than 3.5 feet.

g. Struts shall be placed after embankment is compacted to top of corrugated pipe but before any embankment is placed over the pipe. No equipment shall pass over the corrugated pipe until struts are in place and 3 feet of embankment is in place over the pipe.

h. Struts shall consist of 6 by 6 inches longitudinal timbers at the invert and top of corrugated pipe separated by 6 by 6 inches timber posts at 3 feet centers. Struts shall be shimmed tight using hard wood wedges nailed securely in position. Placement of struts shall be limited to the portion of corrugated pipe located within 12 feet of centerline of tracks.

i. Unless otherwise directed by the Engineer, struts shall be left in place until track laying is completed after which the struts shall be removed.

j. The furnishing and placing of field strutting material shall be considered incidental to pipe placement.

5. Reinforced Concrete Pipe

   a. Installation shall be in accordance with AREMA Manual For Railway Engineering Chapter 8, Part 10.4, Installation.

   b. Gaskets out of position or loaded with dirt or other foreign material shall be removed, cleaned, and replaced before the joint is made.

6. Polyethylene and PVC Pipe

   a. Install in accordance with the manufacturer's written recommendations.

7. Structural Plate Pipe

   a. Structural plate pipe shall be erected at the site, in accordance with detailed plans or instructions of the Engineer.

   b. Where two or more structural plate pipes are used, they shall be a minimum of 1/2 pipe diameter or one-third of pipe-arch span apart. Where practicable, in the opinion of the Engineer, a space of 10 feet may be provided between pipes to facilitate compacting fill material around the pipe with heavy equipment.

   c. Structural plate pipes may be made up of corrugated plates of variable gages. The invert plate may be two gages heavier than the plates for the sides and top of the pipe section, and heavier gage plates may be used in the center sections than at the end sections of the pipe. An erection diagram will be provided and must be followed without exception.

   d. Strutting of structural plate pipe, if required, shall be as shown in the Installation Procedures or Erection Diagram.

   e. Structural plate pipes are to be assembled at the site with as few bolts as possible until all plates are in place. Three or four untightened bolts near the center of each plate along the longitudinal and circumferential seams are sufficient, and after several rings have been assembled the remaining bolts can be inserted, the corner bolts being the last. Bolts are to be tightened progressively from one end of the structure to the other after assembly has been completed, and shall be check-tightened in the same manner to be sure none is left loose. All bolts shall be tightened with proper tools, either hand or power wrenches, initially to a minimum of 100 ft-lbs. and a maximum of 300 ft-lbs of torque. After backfilling is complete, bolts are to be checked for tightness and re-tightened if no longer torqued within these parameters.

   f. Where heavy camber is necessary, erection procedures may be modified, but only as specifically approved by the Engineer for each such case.

g. At locations where the existing structural plate pipe is to be extended with new plates, the joining end of the existing pipe shall be free of breaks, cracks or other defects. The Contractor must remove any existing damaged and beveled plates so that extension can be made using standard plates. Such removal will be considered incidental to the cost of the pipe, and no direct payment will be made therefore.

h. Identification tag, supplied by manufacturer, shall be attached near top of and inside of pipe at upstream end.

i. End plates must be removed and remaining plates and bolts inspected for reuse by the contractor prior to ordering the extension culvert material. Existing bolt holes shall be reused for the extension connection.

j. In stock and vehicular underpasses which are to receive concrete invert paving, the area to be covered by concrete shall be clean and dry. Wire mesh reinforcement may be tack welded to bolts.

C. Backfill and Embankment

1. General

a. When the pipe foundation line is below natural ground, compacted backfill, shall be placed around the pipe in the area within the limits of the embankment section which was removed as channel excavation. The upper limit of this backfill shall be the top of pipe elevation or the elevation of natural ground surface as it existed before any excavation was made, whichever is lower.

b. Embankment above natural ground.

1) When the upper limit of backfill is the top of pipe elevation, three (3) feet depth of material shall be placed above the pipe without compaction. This material shall be compacted at the time the roadbed receives its final finish.

2. Placing and Compacting Backfill and Embankment

a. The placing of embankment around pipes is to be started with the approval of the Engineer only after assembly and erection work has been completed in every detail. Embankment material to be placed around pipe must be approved by the Engineer.

b. Embankment under the haunches, along each side for a minimum width equal to the pipe diameter, and over the pipe is to receive special handling both as to placing and as to compaction. Embankment shall be hand tamped directly under the haunches throughout the width beyond the reach of machine compacting equipment.

c. All material, except that noted to be left non-compacted until the roadbed is completed on top of the culvert, shall be compacted. Compaction methods and equipment shall be approved in advance by MTS.

d. If the Engineer permits the clear distance between multiple pipes, or the clear distance between pipe and cut face, to be less than 3 feet, lean concrete slurry shall be used to fill under the haunches and to a minimum depth of the spring lines of the pipe installation. The concrete slurry mix shall be approved by the Engineer. Care shall be taken to ensure that the concrete slurry does not float the pipes above their intended elevation.

e. The embankment directly above the pipe for a distance of one-third pipe diameter, but not less than 3 feet is to be placed without compaction.

f. Where the distance from subgrade to top of pipe is less than 3 feet, the excess material shall be left in place until the roadbed receives its final finish. At this time the material over the pipe to a depth of 1 foot below subgrade elevation shall be compacted.

g. Care must be taken to prevent water form leaking through the fill or along the side of the pipe. When granular materials have been used for bedding or backfill, the ends of such material must be sealed against infiltration. This can be done by using impervious embankment material for 3 feet at both ends of the pipe.

D. Headwalls and Connection Structures

1. Prefabricated concrete or steel headwalls shall be constructed in accordance with the details indicated on the Contract Plans and in accordance with the manufacturer’s instructions for the products called out thereon.

2. Seal all joints at headwalls and connection structures to ensure water tightness.

E. Installation Finalization

1. The Contractor must remove all waste materials, including unacceptable excavated material, trash, and debris from the worksite and legally dispose of it off site at no additional cost to MTS.

2. At the conclusion of the Work, the Contractor must thoroughly clean the entire length of all the installed, extended or modified culvert by flushing with water or other means to remove all dirt, stones, pieces of wood, or other material, which may have entered the culvert during the construction period. Debris cleaned from the lines shall be removed from the Worksite. If there are any remaining obstructions after such cleaning, such obstructions must be physically removed by the Contractor.

3. Contractor must provide Engineer 48 hours advance notice to perform final inspection and acceptance of culvert installation.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Culvert Pipe will be measured by the type and size of the pipe, and the unit or fraction thereof furnished and installed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved Schedule of Values, as applicable, as derived from the plans will be used as the basis for this measurement.

B. All material, work and services furnished for excavation and backfill, structural fill, crushed aggregate bedding material, structural concrete, Concrete for connection structures between existing and new culverts and headwalls and precast concrete will be included in this Section and are considered incidental to work under this Section and will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer.

4.02 PAYMENT

A. Culvert and drain pipe, constructed in accordance with the Civil and Track Sections of the Contract Documents shall be paid for at the contract unit price as listed in the Bid Price Form. This price shall be full compensation for furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals necessary for all underdrains described by the Contract Documents.

B. Culvert and drain pipe, constructed in accordance with the Signal Section of the Contract Documents shall be included in the lump sum contract price paid for that location’s Signal Location Complete. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

C. Full compensation for excavation and backfill, structural fill, crushed aggregate bedding material, structural concrete, Concrete for connection structures between existing and new culverts and headwalls and precast concrete shall be considered as included as listed on the Bid Price Form.

END OF SECTION

SECTION 34 11 13
TRACK RAILS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes specifications for the manufacturing, testing, fabricating, shipping, unloading, and stockpiling of steel rail as specified herein.

B. Track rail plugs shall be required for Insulated Joint removal as shown in the Contract Drawings. Additional rail may be needed as incidental to the required Special Trackwork.

C. Per the contract documents, the Owner is providing a portion of the track materials deemed long lead. These materials are covered in Spec Section 01 00 00 General Requirements, 2.01 Owner Furnished Special Trackwork and 2.02 Owner Furnished 115 RE Head Hardened Steel Rail. Spec language pertaining to fabrication, manufacture and shipping/delivery of these items remains in the individual sections and shall be treated as information only.

1.02 REFERENCES

A. This Section incorporates by reference the latest revisions of the following documents.

1. The American Railway Engineering and Maintenance-of-Way Association (AREMA)
    a. AREMA Manual for Railway Engineering (AREMA Manual)
    b. Portfolio of Trackwork Plans
2. Association of American Railroads (AAR)
    a. AAR: Manual of Standards and Recommended Practices
3. ASTM International
    a. ASTM A578/A578M Standard Specification for Straight-Beam Ultrasonic Examination of Rolled Steel Plates for Special Application
    b. ASTM E10 Standard Test Method for Brinell Hardness of Metallic Materials
    c. ASTM E164 Standard Practice for Contact Ultrasonic Testing of Weldments
4. American Welding Society (AWS):
    a. AWS B2.1: Standards for Welding Procedures and Performance Qualifications
    b. AWS D1.1: Structural Welding Code

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following:

1. Product Data: Submit the following product data for each rail section:
    a. Steel manufacturing process.
    b. Hydrogen elimination process
    c. Heat treatment process, as applicable
    d. Alloy rail chemical composition
    e. Production records and production test results. These records and test results shall be provided at the time of shipment of associated rails.
2. Submit Test Program Plan and test results as required under the program
3. Mill Certificates: Submit mill certifications complete with the following data with each shipment:
    a. Rail section and type.
    b. Heat number.
    c. Number of pieces in each heat.
    d. Chemical analysis.
    e. Brinell hardness readings.
    f. Macroetch test results.
    g. Ultrasound test results.
4. Method for hydrogen elimination.
5. Method for head hardening premium rail.
6. Description of the ultrasonic testing procedures, and certifications for the testing personnel. Hard copy results for rails with rejectable discontinuities.
7. Method of identifying the rail.
8. Method of handling, loading, shipping, unloading and stockpiling the running rail not later than 30 days before shipment. Include working drawings showing the rail stocking arrangement.
9. Ultrasonic Technician qualification certification for the individuals actually conducting the testing at least 30 days before the commencement of the in-plant inspection.

1.04 QUALITY ASSURANCE

A. Develop and maintain a quality control program regulating methods, procedures, and processes to ensure compliance with standards of quality as specified herein.

B. Test Program Plan

1. Provide a test program plan including a product flow chart identifying the approach for accomplishing each of the specified rail inspections and tests. Make available at rail mill a detailed narrative for each test and inspection describing the test set-up; equipment and instrumentation used; procedure implemented; and the anticipated, as well as acceptable, test results. Include drawings showing the relationship of the rail and significant components of the test equipment, as necessary, to describe the test set-up and procedure. Include in the test program plan the test sequencing.
2. Include key equipment specifications and calibration methods as requested for testing equipment used to perform rail testing and inspection in the test program plan. Indicate the calibration certificates to be submitted with the test reports.
3. Include the identity and qualifications of personnel who performs rail testing and inspection and certification records for personnel who perform nondestructive testing.
4. Include a description list of the testing facilities.
5. Include the proposed format for reporting test data.
6. Include the projected schedule for submittals of test procedures, test executions, and test results reports.
7. After approval of the test program plan, have proposed changes approved by the contractor QC or its designee before implementing the change.
8. Perform tests and analyses specified in Chapter 4, Part 2, of the AREMA Manual and submit the results in accordance with this Section.

C. Testing Facilities – Perform rail inspection and testing at the rail mill using qualified manufacturer's personnel. The rail mill will use the equipment for the rail testing and inspection described herein. Rail testing and inspection equipment, and personnel, will be subject to approval by the contractor QC or its designee. The contractor QC or its designee, or an independent witness designated by the contractor QC or its designee, will monitor the operations at the rail plant to ensure that the inspections and tests are being performed in accordance with accepted procedures and in compliance with these Specifications.

D. Qualification of Testing Personnel

1. Use personnel performing tests and inspections who are qualified for such Work by virtue of previous experience or training.
2. Use personnel performing nondestructive testing who are qualified and certified in accordance with the American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A. Only persons certified for NDT Level I, and Working under a NDT Level II person or persons certified for NDT Level II, may perform nondestructive testing.

E. Testing Equipment – Use testing equipment that is in good operating condition, of adequate capacity and range, and accurately calibrated, that is calibrated, certified and traceable to recognized national standards such as the National Institute of Standards and Technology. Calibrate testing equipment in accordance with the accepted Quality Assurance Plan.

F. Test Report

1. The rail mill's standard, computer-generated, test reports may be used upon review and acceptance by the contractor QC or its designee. Supplemental reports may be required by the contractor QC or its designee, to provide additional information. Submittal list shows requirements.

2. MTS Notification – Notify MTS and contractor QC or their designee in writing not less than five Working days in advance of dates scheduled for any tests or inspections. MTS and contractor QC or their designee retains the right to witness the tests.

3. Whether or not the Engineer inspects or tests any materials, the Contractor shall not be relieved from any responsibility regarding defects or other failures to meet the Contract requirements, nor shall such inspection or testing by the Engineer be considered as a guarantee of acceptance of any material that may be delivered later.

G. Tolerances

1. Manufacturing tolerances and Dimensions to conform to the AREMA Manual "Specifications for Steel Rails".

2. Workmanship to conform to AREMA Manual, Chapter 4, Section 2.1.13, “Workmanship."

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: In accordance with AREMA Paragraph 2.1.16 and the following

1. Delivery:

a. Contractor furnished rail plugs to be used for Insulated Joint Removal shall be stockpiled in in contractor’s laydown yard.

b. Owner Furnished Rail to be used for the fabrication of continuous welded rail (CWR) to be laid by this Contract shall be traveled from the rail stockpile locations described in the General Requirements 01 00 00 2.01 Owner Furnished 115 RE Head Hardened Steel Rail.

2. Load unload, handle, and store rail by accepted methods to prevent kinking, bending, nicking, or otherwise damaging the rail. Comply with AREMA and the following:

a. In unloading operations, do not drop rails, but place each length of rail with the head up and with sufficient support under the base.

b. Do not subject individual rail bundles to excessive static loading.

c. Avoid sudden impact or dynamic loading and prevent high stressing arising from point or line loading.

d. Avoid excess cantilever of the rail and beyond the slinging points to prevent permanent bending and excessive stressing of the rail.

1) Single point slinging of straight rails longer than 39 feet is prohibited.

2) Locate slinging points at uniform lengths along the load so that rails are in horizontal position at all times. Spanner beams are recommended.

3. Rail Grappling Equipment:

a. Rail support, handling, clamping, or pinch rollers shall be contoured properly to match the particular rail profile and thus avoid localized point or line contact.

b. Chains and Slings:

1) The use of chains and wires that may cause surface damage is not allowed.

2) Use only slings that do not cause surface damage or notching. Terylene or nylon strapping is recommended, with an additional sleeve where the sling is in contact with the rail. Flat-profile chain link slings with a protective sleeve are also recommended.

4. Use sufficient timber dunnage at all times and take particular care when extracting slings from around rail lifts in order to ensure they are not “ripped out.”

5. Sort pre-curved rail according to each track curve and load, deliver and stockpile same track curve rails together in the same tiers.

B. Do not stockpile or store rail within public right-of-way, unless approved otherwise. Stockpile standard rails and high-strength rails separately and with the branding facing on one side only.

C. Stockpile rail head up and according to rail type. Place separators between each tier. Support rail a maximum distance between supports of 25 feet. Stack rail a maximum of ten tiers high.

PART 2 - PRODUCTS

2.01 RAIL

A. 115 RE rail where specified shall be high strength head hardened steel rail conforming to AREMA Volume 1, Chapter 4, Section 2.1, Specifications for Steel Rails.

B. Furnish rails with blank ends unless otherwise noted.

PART 3 - EXECUTION

3.01 MANUFACTURE

A. Conform to AREMA Manual, Chapter 4, Section 2.1.2, “Manufacture.”

B. Conform to AREAMA Manual, Chapter 4, Section 2.1.7, “Hydrogen Elimination.”

3.02 RAIL CUTTING AND END PREPARATION

A. Rails used for electric-flash butt welds shall have their ends saw-cut or abrasive disc-cut clean and square by means of accepted equipment.

B. Torch cutting of rail is prohibited.

C. The head and base of the rail for a length of approximately six inches from welding end shall have mill scale removed down to bright metal.

D. All burrs shall be removed from the area where the welding current carrying electrodes contact on the head and base of the rail.

E. Holes will not be permitted in the rail, except as approved by the Engineer.

3.03 RAIL WELDING

A. CWR strings shall be fabricated so that all of the branding appears on one side of the string.

B. Rail welding shall be in accordance with Section 34 11 16.19, “Thermite Welded Track Rails”.

C. Flash butt welding and testing of rail shall conform to the current AREMA Manual, Chapter 4, Part 3, Section 3.11, "Specification for Fabrication of Continuous Welded Rail," unless otherwise specified herein.

3.04 TESTING

A. Brinell Hardness Test - Perform in accordance with AREMA Manual, Chapter 4, Section 2.1.3.2, Surface Hardness" and 2.1.3.3, "Internal Hardness of High Strength Rail."

B. Ultrasonic Testing - Determine the internal condition of the rails by nondestructive testing in accordance with AREMA Manual, Chapter 4, Section 2.1.8, "Ultrasonic Testing."

C. Manual ultrasonic testing - In accordance with AREMA Manual Chapter 4, Section 2.1.17.2, "Manual Ultrasonic Testing."

D. Tensile Test – Perform in accordance with AREMA Manual Chapter 4, Section 2.1.3.4, "Tensile Properties."

E. Brinell Hardness Test – Perform in accordance with Per AREMA Manual Chapter 4, Section 2.1.3.3, “Internal Hardness of High-Strength Rail.”

F. Macroetch Test - Perform in accordance with AREMA Manual Chapter 4, Section 2.1.9, “Interior Condition/Macroetch Standards.”

G. Defective Rail - Rework, retreat, cut-back or reject rails failing to meet the requirements of these Specifications in accordance with the AREMA Manual.

3.05 INSTALLATION

A. Track Rails shall be installed in accordance with Section 34 72 13, “Railway Line Construction”.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. At the grade crossing locations, no separate measurement will be made for installing replacement rail.

B. Track Rail for Insulated Joint Removal will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Track Rail for Insulated Joint Removal furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer

B. Full compensation for track rails shall be considered as included in the contract price paid for various other items within “Civil and Track” on the Bid Price Form therefore no separate payment will be made.

END OF SECTION

SECTION 34 11 16.19
THERMITE-WELDED TRACK RAIL

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes furnishing, installing, and testing exothermic thermite rail welds to connect continuous welded rail (CWR) strings and/or special trackwork rails as specified herein and in accordance with the requirements of AREMA, Chapter 4, Section 3.14, Specifications for Quality Assurance of Thermite Welding of Rail.

B. Section Includes:

1. Site Verification of Conditions
2. Field Welding Procedures
3. Weld Numbering
4. Finishing Welds
5. Repair
6. Field Quality Control

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. AREMA Publication – Manual for Railway Engineering (MRE)

B. ASTM International (ASTM):

1. ASTM E10 – Standard Test Method for Brinell Hardness of Metallic Materials
2. ASTM E164 – Standard Practice for Contact Ultrasonic Testing of Weldments

C. American Society for Non-Destructive Testing (ASNT):

1. ASNT Central Certification Program (ACCP)
2. ANSI/ASNT CP-189 – Standard for Qualification and Certification of Nondestructive Testing Personnel
3. ANST Recommended Practice No. SNT-TC-1A

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following information in accordance:

1. Quality Program in accordance with Section 34 72 13, “Railway Line Construction”.

2. Welding foreman's qualifications, certifications, and experience record in accordance with Article 1.4C herein.
3. Testing Agency:
    a. Copy of the testing agency agreement in accordance with Article 1.4D.1.c herein.
    b. Testing agency qualifications, personnel, and certification of testing program and procedures in accordance with Article 1.4D.2.b herein.
    c. Testing agency inspection program in accordance with Article 1.4D.3.a herein.
4. Certified qualification test results for the thermite-welded track rail procedures in accordance with 1.4E.1.e herein.
5. Welding crew qualification documentation in accordance with Article 1.4E.1 herein.
6. Certification that thermite welding kit powder portions comply with the requirements in accordance with Article 2.1A.2 herein.
7. Thermite welding kit manufacturer's instructions or procedures in accordance with Article 2.1A.3 herein.
8. Production rail welding test reports in accordance with Article 3.7B.1 herein.
9. Daily thermite-welded track rail records in accordance with Article 3.7F.1 herein.

1.04 QUALITY ASSURANCE

A. Quality assurance shall comply with the Contract Documents.

B. Quality Control Program
1. Develop and maintain a Quality Control Program for handling, storing, and installing thermite (field) welds to regulate methods, procedures, and processes.
    a. Thermite-welded track rail Procedure:
        1) As part of the Quality Control Program, prepare detailed thermite-welded track rail procedures for the Engineer's review and approval covering step-by-step directions for making thermite field welds in the rail.
            a) If the manufacturer's recommended procedures for welding high-strength rail differ from those for welding standard rail, state the specific differences and procedures for each.
        2) Include a complete description of each of the following items and other essential information in each thermite-welded track rail procedure:
            a) Manufacturer's trade name for the welding process
            b) Method used for cutting rail and cleaning rail ends

c) Rail end spacing, tolerance, and procedure for setting the rail gap

d) Methods and equipment to be used to maintain the rail gap and alignment during welding

e) Methods for placing and luting prepared molds

f) Method used for preheating rail ends, including duration and temperature range

g) Procedure for igniting and flashing prior to drop into mold, including minimum duration required before drop

h) Procedure for tapping the mold, including minimum duration required to cool the weld under the mold insulation

i) Methods used for removing gates and risers, and for finishing the weld to make it suitable for ultrasonic inspection, including a description of special tools and equipment required

j) Method for producing the hardness specified in Article 1.4E.1.d herein

k) Quality Control procedures

l) Environmental and safety methods for controlling smoke and fumes when thermite welding in tunnels.

b. Submit the Quality Control Program to the Engineer for acceptance.

C. Welding Foreman

1. Employ a welding foreman who has a minimum of 5 years' experience supervising field welding to directly supervise all thermite-welded track rail performed under the Contract.

2. Submit the welding foreman's qualifications, certifications, and experience record for approval.

D. Testing Agency

1. Employ a reputable, certified, and independent testing agency(s) experienced in performing all of the tests required by this Section to perform all weld qualification testing and production weld testing and to certify whether or not each weld meets the quality criteria for the duration of the Contract.

a. All testing performed by the testing agency will be at the Contractor's expense and at no additional cost to MTS.

b. Specify the following in the Contractor's agreement with the testing agency:

1) The testing agency is responsible to the Engineer, not the Contractor.

a) The Engineer, at his discretion, may observe all inspection and testing.

2) All subsequent communication between the testing agency and the Contractor shall be copied to the Engineer.

c. At least 30 days before welding operations are initiated, submit a copy of the agreement with the testing agency for approval.

2. The independent testing agency and its testing program, personnel, and procedures shall be certified.

a. Test technicians performing non-destructive examination of rail welds shall hold an ASNT Level II or Level III certification in accordance with Recommended Practice No. SNT-TC-1A, the ACCP, and ANSI/ASNT CP-189; and shall have at least 1 year of experience testing for defects in rail.

b. Submit the testing agency, its personnel, and certification of their testing program and procedures to the Engineer for approval.

3. Inspection Procedures:

a. Direct the independent testing agency to prepare an inspection program and submit it to the Engineer for approval.

b. The program shall include a description of proposed procedures, equipment, and reports.

E. Qualifying the Thermite-welded track rail Procedure

1. Prior to beginning production thermite welding, qualify the welding crew and thermite-welded track rail procedure described in Article 1.4B herein, by preparing and testing three qualification weld samples as follows:

a. Prepare and test three qualification weld samples joining:

1) High strength rail to high strength rail

2) High strength rail to standard rail

3) Standard rail to standard rail

b. The qualification weld samples shall be prepared by the welding crew in the presence of the Engineer.

c. To prepare each qualification weld sample, join two pieces of rail, each a minimum of 30 inches in length.

d. To produce the hardness (Brinell Hardness Numbers (BHN) specified in Article 1.4H.2 herein, administer special cooling processes to the qualification weld samples immediately after stripping weld forms as specified in AREMA Manual for Railway Engineering, Volume 1 Track, Chapter 4 Rail, Part 2 Specifications, Section 2.1 Specification for Steel Rails, Paragraph 2.1.4.1.d Welding of Standard Chemistry Rail Steel.

e. Have the testing agency test each of the three qualification weld samples to qualify the welding crew and the welding procedure by using the following specified test procedures, and submit certified test results documenting the outcome of the testing:

1) Visual and dimensional inspection testing as specified in Article 1.5F herein

2) Ultrasonic testing specified in Article 1.4G herein

3) Brinell Hardness testing specified in Article 1.4H herein

4) Dynamic testing specified in Article 1.4I herein

5) Slow bend testing specified in Article 1.4J herein

f. The thermite-welded track rail procedure will be considered qualified if all tests and inspections, and the weld kit, meet or exceed the acceptance requirements specified.

g. If tests or inspections fail, resubmit a revised thermite-welded track rail procedure to qualify the revised procedure in accordance with the requirements herein.

2. Do not begin production field welding until a thermite-welded track rail procedure is qualified and accepted by the Engineer in accordance with the requirements herein.

3. The Engineer has, at his sole discretion, the authority to waive either in whole or in part the requirements for qualification weld testing provided that the Contractor presents information that documents that the welding processes, including Article 1.5E.1.e herein, and crews proposed for the Work have passed similar testing within a 12-month period immediately preceding the commencement of rail welding operations.

F. Visual and Dimensional Inspection: Subsequent to finishing the weld, visually and dimensionally inspect each weld to determine conformance with the alignment and finishing tolerances in AREMA Manual for Railway Engineering, Volume 1, Chapter 4 Rail, Section 3.12, Specifications for Fabrication of Continuous Welded Rail, except as modified by this Section.

1. Inspect each weld using a 3-foot straightedge along the centerline of the rail and 0.625 inch below top of rail on the gauge side of the railhead.

2. Center the straightedge over the weld; the gap between the end of the straightedge and the railhead shall not exceed AREMA Chapter 4 criteria.

3. Cut out and re-weld out-of-tolerance welds in accordance with these Specifications and at no additional cost to MTS.

G. Ultrasonic Testing

1. Test Procedure

a. Use test technicians holding ASNT Level II or Level III certification to ultrasonically test each weld in accordance with ASTM E164.

b. Scan the rail in a zigzag pattern to scan the full rail weld at a scanning level of plus 20 dB minimum, twisting the probe on one side of the weld only, and at a rate not exceeding 6 inches per second.

c. Scan longitudinally to the rail and overlap each pass a minimum of 10 percent.

d. When a reflection of greater amplitude that the acceptance criteria listed in Article 1.4G.2 herein is found, scan the full perimeter of the weld from both sides to ensure full weld coverage and determination of the discontinuity size, type, and location.

2. Acceptance Criteria: All welds shall be free from defects or flaws giving a reflected display of greater than 20 percent of the distance-amplitude correction curve at the calibration level, and that are free from defects or flaws of equal or greater amplitude than shown in Table 34 11 16.19-1.

Table 34 11 16.19-1
Minimum Acceptance Levels (decibels) Weld Thickness (inches) and Transducer Angle

REFLECTOR	5/16″ TO 3/4″	3/4″ TO 1-1/2″	1-1/2″ TO 2-1/2″	2-1/2″ TO 4″	4″ TO 6″
Severity	70°	70°	70° 45°	70° 45°	70° 45°
Large Reflectors	+8	+3	+1 +4	-4 +1	-7 -2
Small Reflectors	+9	+4	+1 +6	-2 +3	-5 0
Minor Reflectors	+10	+5	+3 +8	0 +5	-3 +2

H. Brinell Hardness Test for Testing Qualification Welds:

1. Test Procedure:

a. Preparation:

1) Longitudinally section one of the welded rails along the centerline of the rail for a distance of 6 inches on each side of the weld and test for Brinell Hardness.

2) Microetch and photograph the section to show fusion lines and heat-affected zones.

3) Establish a grid pattern commencing 1/4 inch below top of rail in 1/2-inch increment rows for 3 inches below the top of rail extending on the same grid pattern for 3-1/2 inches on each side of the centerline of the weld and on a grid pattern of 1-inch increments beyond the heat-affected zone until the hardness is that of the original parent metal.

b. Test the longitudinal sectioned face for hardness at points on the grid pattern in accordance with ASTM E10 with a 10 mm ball and an applied load of 3,000 kg.

2. Acceptance Criteria: The BHN in the weld area and adjacent heat affected zones shall be as follows:

a. For high-strength 115 RE Rail: 310 minimum and 400 maximum.

b. The heat affected zone shall be 1-1/4 inch maximum width 1/4 inch below the top of rail head.

3. Submit the tested rail section to the Engineer along with the test report.

I. Rolling Load Test for Dynamic Testing of Qualification Welds:

1. Test Procedure

a. From the remaining qualification weld samples, select one of the two samples made after it has passed the visual and ultrasonic testing and subject it to the dynamic rolling load test.

b. Place the test sample on supports separated by 36 inches on center with the weld located between the supports.

c. To simulate a rolling load, use two hydraulic rams to repeatedly apply loads to the rail alternately at Points A and B

1) Vary each load approximately sinusoidally from 0 to 44,400 pounds for 115 RE rail.

a) Monitor the loads with load cells placed between each ram and the rail head.

b) Calibrate the load cells prior to commencement of the test program.

2) Apply loading for 2 million load cycles.

c) One application of the load at Point A followed by one application of the load at Point B constitutes one load cycle.

d. Measure permanent rail deflection at Point A every 500,000 load cycles, and record the measurement to the nearest 0.001 inch.

2. Acceptance Criteria: Following the full 2 million load cycle test, the weld withstood the full number of cycles with no visual cracks and the permanent deflection is less than or equal to 0.094 inch.

J. Slow Bend Test for Dynamic Testing of Qualification Welds

1. Test Procedure: After it has passed the visual and ultrasonic testing, subject the third weld sample to the slow bend test described in the AREMA Manual for Railway Engineering Volume 1, Chapter 4 Rail, Part 3, Section 3.11, subsection 3.11.6 Slow Bend Tests.

2. Acceptance Criteria

a. Minimum deflection: 0.60 inch before visible failure for 115 RE rail.

b. Modulus of rupture: 120,000 pounds per square inch, minimum for 115 RE rail.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Storage of Thermite Welding Materials

1. Handle and store welding products in accordance with the manufacturer’s recommendations.

2. Store crucibles, molds, and thermite mix portions in a dry location in order to prevent moisture contamination.

3. Do not use thermite mix portions stored beyond their stated shelf life.

1.06 FIELD CONDITIONS

A. Due to specific rail lengths, rail end gaps and fixed positions of frogs, closure rails, and stock rails, flash butt welding is not practical at special trackwork. Therefore, all special trackwork connections shall be thermite (field) welded.

B. The Contractor may perform field welding at other than special trackwork locations by either using the materials and methods of this Section or may elect to perform some or all of the other field welding connecting rail using a portable electric (flash butt) Welding.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Thermite Welding Kits: Select and furnish a welding kit that conforms to the requirements of AREMA Manual for Railway Engineering, Vol. I, Chapter 4 Rail, Section 3.14, Specification for the Quality Assurance of Thermite Welding of Rail, except as modified herein.

1. All materials used on any given thermite field weld shall be the products of a single manufacturer or recommended by the manufacturer for use with their welding process. Only use welding products that have passed the manufacturer's quality programs, have been handled and stored in accordance with the manufacturers written recommendations, and are within the stipulated shelf life of the material.
2. Submit certification from the material manufacturer that the powder portions of the thermite welding kit comply with the referenced requirements, including hardness requirements of AREMA high strength rail, where used.
3. Submit the manufacturer's instructions or procedures for the thermite welding process prior to performing the thermite welding to qualify the thermite welding procedure, welding foreman, and welding crews.
4. Submit and comply with the manufacturer's recommendations concerning handling, storage, and shelf life of thermite rail welding products.

B. Provide all other materials required to perform the Work specified herein.

2.02 EQUIPMENT

A. Furnish all testing equipment required to perform weld quality and qualification testing as specified herein as part of the testing agency service.

1. Visual and Dimensional Testing Measuring Tools:
   a. Taper Gauge
      1) Manufacturer: L.S. Starrett Company Catalog Number 270 or accepted tool of the same standard of quality.
   b. Straightedge
      1) Material: Stainless Steel
      2) Length: 3 feet

3) Manufacturer: L.S. Starrett Company Catalog Number 380-36 or accepted tool of the same standard of quality.

2. Ultrasonic Testing Equipment

a. Furnish an ultrasonic, pulsed echo instrument capable of inspecting rail welds and detecting a 3/64-inch discontinuity 6-1/2 inches below the top of rail, and having the following features:

1) A calibrated decibel gain control with 2-dB, minimum, increments.

2) Operation in the 1 to 5 MHz range.

3) A graduated CRT screen.

4) Calibrated paper tape recording attachments to record accurately the CRT screen indications when a non-complying weld is located.

5) 2.25 MHz angle beam transducers, 1/2 inch by 1 inch at 70 degrees and 45 degrees.

6) Suitable high-viscosity couplings with good wetting characteristics.

b. Furnish standard IIW calibration blocks of rail steel for primary reference response and to construct the distance-amplitude correction curve.

c. Furnish DSC blocks of rail steel for calibration checks.

d. Furnish an 18-inch long calibration tee rail having the appropriate hole patterns.

3. Brinell Hardness Testing Equipment: Furnish equipment capable of performing Brinell Hardness testing in accordance with ASTM E10 with a 10-mm ball and an applied load of 3,000 kg.

4. Testing service shall furnish dynamic testing equipment required to conduct testing indicated in this Section.

5. Provide all other equipment required to perform the Work specified herein. Tools used shall meet the minimum requirements of the manufacturer of the rail welding kit.

PART 3 - EXECUTION

3.01 SITE VERIFICATION OF CONDITIONS

A. Do not perform thermite-welded track rail during periods of precipitation, when winds exceed 25 mph or in the presence of atmospheric electrical activity.

B. During the setup and performance of thermite-welded track rail, prohibit other work that would move or vibrate the rails, or otherwise interfere with properly performing the field welding and obtaining satisfactory welding results from occurring.

C. When welds must be made adjacent to at-grade road crossings or other locations where vibrations might be induced in the rail, take all necessary precautions to prevent disturbance of the weld immediately after the molten pour.

3.02 PREPARATION

A. Thermite (Field) Weld Locations

1. Stagger the locations of thermite welds in rails on opposite sides of the track a minimum of 5 feet for connecting CWR strings and a minimum of 2 feet at all other locations.
2. Do not locate field welds within at-grade road crossings or within 10 feet of the edge of the traveled portion or sidewalk area.
3. Do not position field welds either on or within 6 inches of the edge of the rail seat of a crosstie.
4. Do not position field welds within 6 inches from edge of a switch tie plate.
5. In mainline tracks, do not locate field welds within 9 feet of another field weld on the same rail, or within 6 feet of an electric (field) weld on the same rail, unless approved by the Engineer.

B. Rail End Preparation

1. Cut the rail ends by using a power actuated saw, or abrasive rail cutting machine, after arranging and aligning the face of the rail ends at right angles to the saw.
   a. Torch cutting of rail ends is prohibited.
2. Bolt Holes: Do not make or include holes in the ends of the rail to be welded.
3. Clean all rail surfaces on the rails to be welded a minimum of 6 inches back from the rail ends to remove all grease, oil, dirt, loose scale, and moisture.
   a. Use a wire brush to completely remove all dirt and loose oxide, and then use an oxy-acetylene torch with a minimum temperature of 250 degrees Fahrenheit to remove grease, oil, or moisture.
4. Clean the rail ends further to remove all scale and rust for 2 inches on each side of the weld by using a power-actuated grinder with an abrasive wheel.
5. Remove all burrs and lipped metal that would interfere with the fit of the mold.
6. Closely examine the rail ends for signs of internal defects. If the rail end has not been freshly cut, grind the end to bright metal prior to the examination.
7. No rail branding shall be allowed in the area of the weld.

3.03 FIELD WELDING PROCEDURES

A. Closure welds between CWR strings, as described in Section 34 72 13 “Railway Line Construction”, shall be performed in accordance with this Section.

B. Weld rails within special trackwork in accordance with this Section.

C. Use welding procedures and methods that conform to the requirements of this Section.

1. Do not weld rail ends that show steel defects, dents, or porosity before welding.
2. Properly gap, camber, and align the ends of the rails to be welded to produce a weld in conformance with the specified tolerances.

D. Weld Gap

1. The minimum and maximum gap shall be in accord with the instructions of the manufacturer of the weld kit. Verify that the joint gaps in shop fabricated special trackwork are within the kit manufacturer's criteria.
2. Make the minimum measurement with a go or no-go gauge of the specified dimensions for the thermite process used.
3. Adjust the gap if it is under the minimum or more than 1/8 inch over the specified gap.
4. Wide Gap Thermite Welds
    a. Wide gap thermite welds are not allowed, except as herein specified.
    b. At the discretion of the Engineer and only at special trackwork weld locations, wide-gap welds may be considered to salvage a special trackwork component.
        1) Obtain prior written approval before procuring the special wide weld kits.
        2) Wide weld kits, methods, and a qualification test sample shall be qualified in accordance with the thermite weld qualification procedure specified in Article 1.4E herein.

E. Rail Alignment

1. Measure the rail alignment on the head of the rail.
2. When the weld is completed, the vertical alignment shall provide for a level running surface.
    a. Absorb differences of height of the rails at the base.
3. Horizontally align the rail so that differences in the width of the heads of the rails occur on the field side.

F. Properly gap and align the ends of the rails to be welded to produce a weld that conforms to the following alignment tolerances:

1. Horizontal offsets shall not exceed 0.040 inch in the head and 0.125 inch in the base.
2. Surface Misalignment Tolerance:
    a. Combined vertical offset and crown camber shall not exceed 0.040 inch per foot at 60 degrees Fahrenheit.
    b. Combined vertical offset and dip camber shall not exceed 0.010 inch per foot at 60 degrees Fahrenheit.
3. Gauge Misalignment Tolerance: Combined horizontal offset and horizontal kink shall not exceed 0.040 inch per foot at 60 degrees Fahrenheit.

G. Hold the rail gap and alignment without change during the complete thermite-welded track rail cycle by using a hydraulic rail puller/expander and alignment jig.

H. Sealing the Molds: Seal the molds, but do not introduce mold sealant or luting material into the weld chamber.

I. Preheating

1. Prior to welding, preheat the rail ends to a temperature and for time sufficient, as shown in the approved thermite-welded track rail procedure, to ensure full fusion of the weld metal to the rail ends without cracking of the rail or weld.

2. Check the quality of the gas used for preheating to ensure even temperatures are maintained during preheating.

3. Check the rail temperature by using tempsticks, or as directed by the Engineer.

J. Tapping

1. Follow the thermite welding kit manufacturer's instructions and timing to melt the weld metal in the crucible and tap it into the mold.

2. After the metal has cooled sufficiently to begin solidifying, shear the upset weld metal that overflowed into the mold pans to form the basic rail cross-sectional shape.

K. Post Heating: Leave the molds for thermite field welds in place after tapping for a sufficient time to permit complete solidification of the molten metal and proper slow cooling to prevent cracking and to provide a complete weld with the proper hardness and ductility.

3.04 WELD NUMBERING

A. Mark a sequential thermite weld number on the rail immediately adjacent to the weld using a quality paint marker at the time the weld is made.

1. Paint the number 2 inches from the finished weld on the gauge side web of the rail.

B. Number welds sequentially in the order in which they are made.

1. To avoid confusion with numbered flash-butt welds, the number assigned to each thermite field welds shall be appended with the letter "T."

C. When defective welds are replaced, assign a new sequential number to the new weld by adding a letter to the defective weld number; for instance, defective weld 101T would be replaced by weld 101TA.

D. The weld number and letter if applicable shall correspond with the number recorded in the field welding records.

3.05 FINISHING WELDS

A. Finish the weld with a rail-mounted railhead grinder specifically designed for the Work.

1. Blend all grinding to the parent rail section and do not overheat the steel.

2. Complete heavy grinding while the steel is still hot from welding process.

B. Finish the rail weld in the rail head to match the contour of the head to the following tolerances:

1. Top of railhead: Plus 0.010 inch to minus 0 inch of the parent rail section.

2. Sides of railhead: Plus 0.020 or minus 0 inch of parent rail section.

C. Finish the balance of the rail section with a hand-held grinder as follows:

1. The base riser break off area shall be ground flush with the weld collar. Other than the smoothing of the base riser break off area, the as cast geometry of the thermite weld shall be left intact.

3.06 REPAIR

A. If possible, cut out and re-weld welds rejected during inspection and/or testing, or replace them with at least a 9-foot rail welded in its place in accordance with these Specifications.

1. Cut out and re-weld out-of-tolerance welds in accordance with these Specifications at no additional cost to MTS.

3.07 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide the services of a representative from the thermite weld kit manufacturer who is experienced with the thermite welding method being used to be on site and witness the making of at least the first three acceptable qualification field welds.

B. Contract the testing agency specified in Article 1.4D herein, to perform all inspection and testing of field production rail welding specified in this Article, prepare test reports for all tests performed, and do the following:

1. Submit the test reports to the Contractor and the Engineer within 5 days of testing the weld.

2. Certify whether or not each weld meets the quality criteria specified.

3. Indicate acceptance or rejection of each tested weld by marking the weld.

4. Unless otherwise allowed by the Engineer, thermite field welds shall be tested within 7 Days of completion and test reports shall not be more than ten weld tests behind.

C. Visual and Dimensional Inspection: Subsequent to finishing the weld, visually inspect each weld to check for surface defects such as cracks and to determine conformance with the alignment and finishing tolerances herein and in AREMA Manual for Railway Engineering, Volume 1, Chapter 4 Rail, Part 2 Specifications, Section 3.12 Specifications for Fabrication of Continuous Welded Rail.

1. Each completed weld shall have full penetration and complete fusion and be free of cracks.

2. Inspect the alignment of each weld using a 3-foot straightedge along the centerline of the rail and 0.625 inch below top of rail on the gauge side of the railhead.

a. Center the straightedge over the weld.

b. The gap between the end of the straightedge and the railhead shall not exceed AREMA Chapter 4 criteria.

c. Verify that the tolerances specified in Article 3.3D herein, have been met.

3. Verify that the finish is within the tolerances specified in Article 3.5 herein.

4. Cut out and re-weld out-of-tolerance welds in accordance with these Specifications.

D. Ultrasonic Testing

1. Calibrate the ultrasonic testing equipment at the start and end of each day's work, and at least every 4 hours during periods it is used for examining welds.

a. Check the calibration with DSC blocks.

b. If points on the distance-amplitude curve have been changed by more than 20 percent, void all results since the last calibration check and re-examine all welds made since the check.

c. If the curve has moved on the sweep line by more than 5 percent, void all results since the last calibration check and re-examine all welds since the last calibration check.

2. Have each production weld ultrasonically tested in accordance with Article 1.4G herein.

a. For ballasted track, test the weld after the rail is placed in the trackwork to comply with the requirements specified in Section 34 72 13, "Railway Line Construction", and Section 34 72 13.10, "Special Trackwork Construction". Testing shall be conducted only after the rail will not be further handled after testing is complete.

3. Submit certified ultrasonic test reports for all welds including hardcopy printouts of the electronically recorded summary of information, a description of irregularities in the rail and welds if any, and the testing agency's determination of whether the welds satisfy the requirements of this Section.

a. Report ultrasonic test results on a form using the same thermite weld identification number that includes the following information:

1) Location of the weld in the track.

2) Results of visual inspection.

3) Ultrasonic test results, including the size of defects found in the head, web, and base of the rail.

4) Shape, identity, and location of all reflections.

5) Trace identity.

6) Name of inspector.

7) Other information as required including date, weather at the time of the inspection, unusual conditions, and similar information.

4. When ultrasonic testing indicates a reflection of greater amplitude than the acceptance criteria allows, paint across the weld on both sides of the rail head and web to denote a weld not conforming to the acceptance criteria.

    a. Make a permanent trace recording of discontinuity indications.

E. Brinell Hardness Test for Testing Field Welds:

1. Test Procedure

    a. Prior to testing, remove mill scale or surface residue that may affect test results.

    b. Perform Brinell Hardness testing in accordance with ASTM E10, measuring hardness in the weld area and heat affected zones on the head of the rail at 1/2 intervals.

2. Acceptance Criteria: The Brinell Hardness shall be equal to the Brinell Hardness or the parent metal within a tolerance of plus 30 or minus 50 BHN.

3. If the special cooling process specified in Article 1.4E.1.d. herein, does not result in the required hardness, suspend all welding until the cooling process is perfected.

4. Relief from the hardness requirements will not be considered or granted.

F. Thermite-welded Track Rail Records:

1. Maintain a complete and current record of all thermite welds and their locations. Submit them to the Engineer on a weekly basis during the production of field welds. The record shall show all information required in this Section and submitted on forms similar to Figure 34 11 16-19-1. The submitted forms shall be the original field record and not data that has been transcribed onto clean sheets back in the office. Forms shall be initialed by the welding foreman and, if present at the time of welding, by the Engineer and other oversight personnel.

2. Figure 34 11 16.19-1 illustrates a typical field welding record, but does not include boxes for all of the information required. Prepare an appropriate form for thermite-welded track rail records that shall include the following information:

    a. Date and time welded.

    b. Weld number.

    c. Location by station stating track identity or direction and rail position or position within a particular special trackwork layout.

    d. Rails being joined. Individually identify each rail at the joint by rail section, heat number, rail letter, and metallurgy (i.e. high-strength, standard strength, head hardened)

    e. Names of Contractor’s welding personnel present.

    f. Name of MTS representative present (if any).

    g. Name of manufacturer’s representative (if any).

    h. Rail gap (to the nearest 1/16 inch) and method used to maintain gap during welding.

i. Weather conditions.

j. Air and rail temperatures.

k. Weld kit trade name, the identification numbers of individual components and the shelf-life expiration date(s) marked on the packaging.

l. Track alignment (curve, tangent, gradient, and similar descriptors).

m. Rail stress situation at time of welding. For CWR string closure welds, document the status of anchorage and the method(s) employed to make certain the rail in at the appropriate stress condition at the time of welding.

n. Inspection date.

o. Last calibration testing date of ultrasonic equipment.

p. Printed names signatures (not initials) of key personnel present.

q. Inspection results.

3.08 CLEANUP

A. Upon completion of each weld, clean the right-of-way of all welding debris including discarded molds, slag, discarded equipment, and other debris that accumulated during the Work.

B. Restore the job sites to pre-welding conditions to the satisfaction of the Engineer.

C. Perform cleanup in accordance with General Condition's requirements.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Thermite Weld will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

B. Rail welding shall be measure for each field weld, complete in place, as shown on the plans.

C. Within Insulated Joint (New and Removal) work, Thermite Weld is considered incidental to the Work under other payment items and no separate measurement will be made.

4.02 PAYMENT

A. Thermite welds, constructed in accordance with the Civil and Trackwork Sections of the Contract Documents will be paid for at the Contract Unit Price, as listed on the Schedule of Quantities and Prices. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

B. Within Insulated Joint (New and Removal) work, Thermite Welds are considered incidental to the Work under other payment items and no separate payment will be made.

C. The contract price paid per each for a field weld shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals; and for doing all the work to create the weld, complete in place, including testing, in accordance with the Plans and as directed by the Engineer. Only welds to connect special trackwork to track, welds to install insulated joint plugs outside double crossover limits, and welds to connect the beginning and end of new track to existing track shall be paid for. All other welds required shall be incidental to other items of work and no separate payment will be allowed.

RECORD OF THERMITE (FIELD) RAIL WELD				
Contract Number:				
Weld No.	Date:		Time of weld:	
Track designation or turnout identity:	Engineering station or position within turnout :			
Left or right rail when facing in direction of increasing stationing: Check ✓One			Left rail	Right rail
Track alignment and construction type (e.g., curve/tangent, percent gradient, ballasted, direct-fixation embedded, special trackwork) ➔➔				
Back-Station Rail Data:	Rail Section: 115 RE		Mill Brand:	
Year/Month Rolled:	Std. Strength ✓	High-Strength ✓	Heat Number:	
Ahead-Station Rail Data:	Rail Section: 115 RE		Mill Brand:	
Year/Month Rolled:	Std. Strength ✓	High-Strength ✓	Heat Number:	
Was a rail cut required? ➔➔	Yes ✓	No ✓	How much?	
Manufacturer, serial number and shelf-life date of field weld kit: ➔➔				
Weather:	Air Temperature:		Rail Temperature:	
Rail gap (Nearest 1 mm or 1/16 inch): ➔➔		Rail clamp or stretcher used? ➔	Yes ✓	No ✓
Other notable conditions or circumstances: ➔➔				
Foreman present:	Name:		Signature:	
Const. Mgr. Inspector present:	Name:		Signature:	
Other key person present:	Name:		Signature:	
Other key person present:	Name:		Signature	
			Each person present signs above ➔	
Data recorded by:	**Name:**		**Signature:**	

Figure 34 11 16.19-1

END OF SECTION

SECTION 34 11 19
TRACK RAIL JOINTS

PART 1 - GENERAL

1.01 SUMMARY

A. Description:

1. This Section includes requirements for installation and testing of bonded (glued) insulated rail joints for 115 RE Rail specified.

   a. Insulated rail joints will include both shop fabricated plug rails and kits designed for field assembly and installation. Insulated joints outside limits of special trackwork shall be furnished as plug rails.

   b. Insulated rail joints that are internal to a special trackwork unit shall be furnished by the special trackwork fabricator as a part of the special trackwork layout.

   c. Contractor shall provide and install Temporary Bolted Polyurethane Insulated Joint (IJ) Bars associated with curve worn rail replacement.

B. Section Includes:

1. Installers
2. Assembly Preparation
3. Joint Assembly
4. Joint Installation
5. Field Quality Control

C. Per the contract documents, the Owner is providing a portion of the track materials deemed long lead. These materials are covered in Spec Section 01 00 00 General Requirements, 2.01 Owner Furnished Special Trackwork and 2.02 Owner Furnished 115 RE Head Hardened Steel Rail. Spec language pertaining to fabrication, manufacture and shipping/delivery of these items remains in the individual sections and shall be treated as information only.

1.02 REFERENCE STANDARDS

A. Association of American Railroads (AAR):

1. AAR – Signal Manual Assembly and Testing of Insulating Track Fittings, Part 14.5.1

B. American National Standards Institute (ANSI):

1. ANSI B1.1 – Unified Inch Screw Threads (UN and UNR Tread Form)
2. ANSI B18.2.1 – Square and Hex Bolts and Screws (Inch Series)

C. American Railway Engineering and Maintenance of Way Association (AREMA):

1. AREMA Publication – Manual for Railway Engineering, Chapter 4 Section 3.8 Specification for Bonded Insulated Rail Joints
2. AREMA Portfolio of Trackwork Plans – AREMA Standard Plan No. 1005 – Beveling of Rail Ends for Special Trackwork
3. AREMA Signal Manual Part 14.5.1

D. ASTM International (ASTM):

1. ASTM F3125 – Standard Specification for High Strength Structural Bolts, Steel, and Alloy Steel, Heat Treated, 120 ksi and 150 ksi Minimum Tensile Strength
2. ASTM B633 – Electrodeposited Coatings of Zinc on Iron and Steel Strength
3. ASTM D257 – DC Resistance or Conductance of Insulating Materials
4. ASTM D1002 – Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)
5. ASTM F436 – Hardened Steel Washers

E. American Society of Mechanical Engineers

1. ASME B18.16.6 – Prevailing Torque Locknuts

F. Steel Structures Painting Council (SSPC):

1. SSPC-SP 10 – Near-White Metal Blast Cleaning

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements, and shall include the following:

B. Submit the following information:

1. Shop Drawings (Owner provided)
   a. Bonded (glued) insulated joints for field fabrication in 115 RE rail.
   b. Shop-fabricated bonded (glued) insulated joint 115 RE plug rails.
2. Methods and Procedures
   a. Proposed procedure for maintaining the specified weld gap in the continuous welded rail during field installation of bonded (glued) joint rail plugs.
   b. Proposed procedure for positioning insulated and welded joints on concrete crosstie and direct fixation fasteners, where applicable.
3. Qualifications of the selected independent testing laboratory and testing personnel.
4. Test Results:
   a. Pre and post installation test results for bonded (glued) insulated joint testing for 115 RE rail.

1.04 DELIVERY, STORAGE AND HANDLING

A. Owner furnished track material shall be handed off to the Contractor in accordance with Section 01 00 00 General Requirements Article 2.01.

PART 2 - PRODUCTS

2.01 GENERAL

A. Bonded insulated rail joints shall comply with the requirements of the AREMA Manual for Railway Engineering, Chapter 4, Section 3.8, Specification for Bonded Insulation Rail joints, except as modified by this Section.

B. Insulated rail joints shall be furnished as factory-fabricated insulated joint plug rails unless the location of the joint makes it impractical to provide anything other than a field fabricated insulated joint.

C. Insulated joint plug rail shall be furnished at a minimum length of 19’-6” unless specified otherwise.

D. All rail clips to be used with glued insulated joints shall be coated modified e-clips with machined edge.

PART 3 - EXECUTION

3.01 JOINT INSTALLATION

A. Install bonded (glued) insulated joints at the locations required by the signal system.

1. Ensure that the center of the joint is approximately centered between rail supports.
2. Ensure that there is no contact between insulated joint bars and the rail fastening assemblies of crossties or direct fixation fasteners.

B. Insulated Joint Plug rails shall be installed in CWR in accordance with Section 34 11 16.19, “Thermite-Welded Track Rail”.

3.02 FIELD QUALITY CONTROL

A. Once the bonded insulated joint has been installed in track, test the resistivity across the insulating components of the joint to verify that the AREMA acceptance criteria are met.

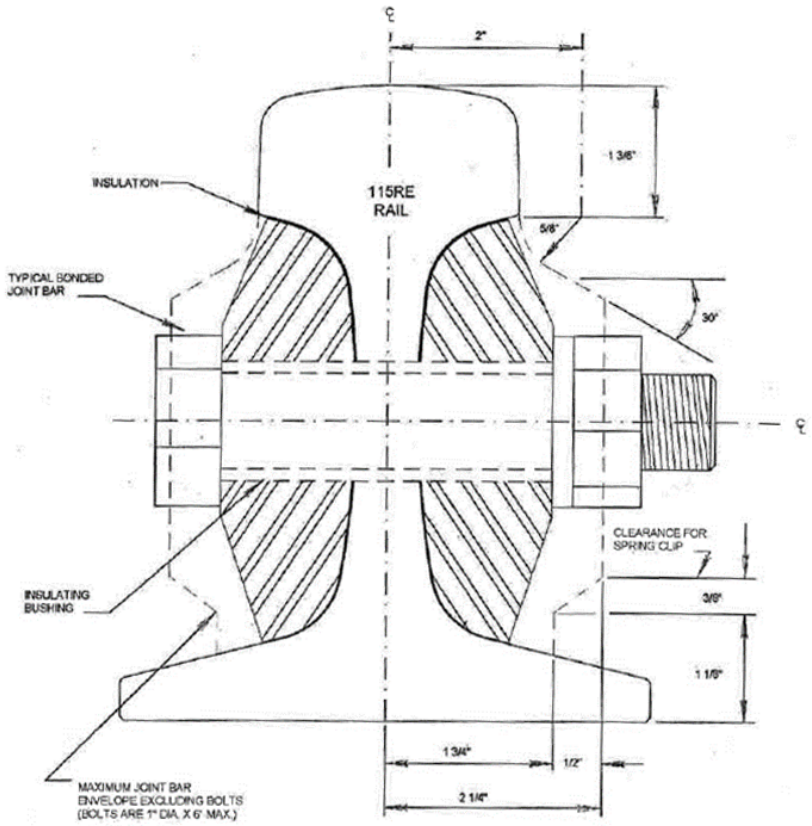


Figure 34 11 19.13-1
Bonded Joint Bar Clearance Envelope

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Track Rail Joints by type (19’6” plug; 39’ plug) will be measured by the unit furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

B. No separate measurement will be made for Temporary Bolted Polyurethane Insulated Joint (IJ) Bars associated with curve worn rail replacement.

4.02 PAYMENT

A. Track Rail Joints by type, constructed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, testing, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer

B. Temporary Bolted Polyurethane Insulated Joint (IJ) Bars shall be incidental to rail replacement, and no separate payment will be made.

END OF SECTION

SECTION 34 11 26.13
TRACK RAIL BALLAST

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes specifications for the furnishing, testing, handling, transporting, and installing mineral aggregate for track ballast and infill ballast as indicated on the Contract Drawings, and Project Specifications.

1.02 REFERENCES

A. This Section incorporates by reference the latest revisions of the following documents.

1. American Railway Engineering and Maintenance-of-Way Association (AREMA)
    a. AREMA Manual for Railway Engineering (AREMA Manual)
2. American Society for Testing and Materials International (ASTM)
    a. ASTM C88 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
    b. ASTM C117 Standard Test Method for Materials Finer Than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
    c. ASTM C127 Standard Test Method for Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
    d. ASTM C131 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
    e. ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
    f. ASTM C142/C142M Standard Test Method for Clay Lumps and Friable Particles in Aggregates
    g. ASTM C535 Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
    h. ASTM D4791 Standard Test Method for Flat Particles, Elongated Particles or Flat and Elongated Particles in Coarse Aggregate
    i. D3744, Standard Test Method for Aggregate Durability Index.
    j. D3042, Standard Test Method for Insoluble Residue in Carbonate Aggregates
    k. E11, Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves.
3. FRA: 49 CFR Part 213, Track Safety Standards, most current and addenda, Federal Railroad Administration

4. California Public Utilities Commission General Orders
5. SANDAG LRT Design Criteria Manual

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following.

1. Representative samples of ballast, of not less than 150 pounds, for gradation and other required test shall be taken from each source of ballast and tested as specified herein. Each shipment of ballast shall be accompanied by a certification as specified.
2. Provide compliance report that certifies results of the test required to demonstrate conformance with this specification shall be provided to the Engineer prior to any material being shipped.
3. Plan for Transporting, Handling, and Placing
    a. The Contractor shall submit to the Engineer a plan for transporting, handling, and placing of ballast.

1.04 QUALITY CONTROL AND ASSURANCE

A. Provide laboratory certification that ballast material meets the specifications of this Section.

B. If Contractor observes ballast material not suitable for work or not in compliance with this part, the Engineer shall be notified within three (3) hours of discovery of condition.

C. The product delivered shall be from the same source from which samples were tested and found to conform to the Specification and shall be of the same type and quality of that which was tested.

1.05 DELIVERY, STORAGE AND HANDLING

A. Prepared ballast shall be handled in such a manner that it is kept clean and free from segregation, and when delivered, the ballast shall be clean and free from rubbish or any substance which might foul the ballast. Blending, stockpiling, and other production and handling operations shall be managed by the Contractor to minimize segregation of finished product. Stockpiling operations shall minimize breakage or excessive fall in stockpiling operations. The movement of wheeled or tracked machines over stockpiled or installed materials shall be limited.

PART 2 - PRODUCTS

2.01 GENERAL

A. Ballast shall consist of crushed stone which is comprised of angular fragments resulting from crushing, by mechanical means, the following types of rocks quarried from undisturbed, consolidated deposits: granite, traprock, or quartzite. No crushed gravel shall be allowed.

2.02 GRADATION REQUIREMENTS

A. Ballast shall conform to AREMA Volume 1, Chapter 1, Section 2.4.4, Standard No. 4A ballast unless otherwise noted. Gradation test shall be determined in accordance to ASTM C-136, utilizing square opening sieves conforming to ASTM Specifications E-11.

The percentage passing each sieve shall fall within the following limits.

Sieve Size	Sieve Opening	Percent Passing by Weight
2-1/2"	2.50"	100
2"	2.0"	90 - 100
1-1/2"	1.50"	60 - 90
1"	1.0"	10 - 35
3/4"	0.75"	0 - 10
1/2"	0.50"	-
3/8"	0.375"	0 - 3
No. 4	0.187"	-

B. No. 5 ballast gradation shall be used on double crossover shoulder intended for the maintenance walkway area as shown on the Contract Plans.

2.03 QUALITY REQUIREMENTS

A. Ballast shall be quarried crushed rock with fractured faces composed of hard, strong and durable particles, free from injurious amounts of deleterious substances, containing no carbonates or slag, and conforming to the following requirements of these Specifications. No crushed limestone, dolomites, or gravels shall be allowed.

B. The Contractor shall select his ballast source to produce ballast in accordance with these Specifications. Do not change material or source of supply without prior approval of the Engineer.

C. Material qualities shall be as follows.

Property	Minimum	Maximum	Test Method
Percent material passing No. 200	--	1.0 percent	ASTM C 136 ASTM C 117
Bulk specific Gravity – Rock	2.60	--	ASTM C 127

Property	Minimum	Maximum	Test Method
Absorption - Rock	--	1.0 percent	ASTM C 127
Clay lumps and friable particles	--	0.5 percent	ASTM C 142
Degradation Granite Traprock Quartzite	 -- -- --	 35% 25% 30%	ASTM C 535 or ASTM C131
Soundness – (Sodium Sulfate) – 5 cycles	--	2.5 percent	ASTM C 88
Flat or elongated particles	--	5 percent	ASTM D4791
Durability Test – Procedure A	65	--	ASTM D 3744
Sand Equivalent	50	—	California 217/ASTM D2419

Use ASTM C 535 for Ballast Standard Type 4A

D. All particles of the ballast shall have been broken by the crusher and have at least two fractured surfaces.

PART 3 - EXECUTION

3.01 GENERAL

A. Ballast shall be delivered to the Project site to specific location(s) as identified on the Contractor's Construction Area Work Plan, in the Project Specific Specifications as required for successful completion of the work or as directed by the Engineer, and installed in accordance with Section 34 72 13, "Railway Line Construction".

3.02 EXAMINATION

A. In-place ballast not meeting the requirements herein shall be replaced by the Contractor at no additional cost to MTS.

3.03 INSTALLATION

A. Ballast shall be installed in accordance with Section 34 72 13, "Railway Line Construction". Ballast shall not be placed, spread, compacted, tamped and dressed until the subballast surface has been accepted by the Engineer subsequent to a joint inspection by the Contractor and the Engineer.

3.04 INSPECTION

A. Ballast is subject to inspection and testing by the Engineer at any time between quarry production and acceptance of track. Ballast that does not conform to these Specifications shall be rejected, and the Engineer will notify the Contractor to stop further ballast operations until the defective material has been removed and replaced.

3.05 FIELD QUALITY CONTROL

A. The Contractor shall provide a minimum of one (1) gradation test and one (1) test on material finer than No. 200 sieve for every 1,000 tons of ballast delivered to the jobsite to ensure uniformity and conformance with the requirements specified herein. The Engineer shall be given a report of the test results.

B. If during ballast installation, the source of ballast changes, the Contractor shall perform tests and inspections on the ballast at the new production site in accordance with these Specifications. The ballast shall have the same classification, quality, and grading as the former ballast used. Delivery to the site shall not commence until the Engineer has approved the new ballast source.

C. The Engineer may take additional samples of ballast. The Contractor shall assist and cooperate with the Engineer in taking such samples.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement will be made for installing ballast.

4.02 PAYMENT

A. Full compensation for ballast shall be considered as included in the contract price paid for various other items within “Civil and Track” on the Bid Price Form therefore no separate payment will be made

END OF SECTION

SECTION 34 11 27
SUB-BALLAST AND AGGREGATE BASE

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This Section specifies the material requirements and performance criteria for roadway, pathway and track bed aggregate base to be furnished in accordance with Contract Documents or required by the Engineer.

1.02 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, in Section 01 00 00, General Requirements.

B. Samples

1. As required by the Engineer samples of not less than 150 lbs. Samples shall be furnished by the Contractor's Vendor or may be obtained independently by the Engineer's representative for testing to determine whether the material delivered to the site is in compliance with the Specifications.

C. The Contractor's Vendor shall submit supporting information within 60 days of award documenting the past successful performance in furnishing the materials included in the Bid Price List. Provide references and contact numbers at the railroads where the turnouts have been placed in service.

D. The Contractor's Vendor shall submit certificate of compliance that the material delivered is in compliance with the specification within 60 days of approval of payment.

1.03 QUALITY ASSURANCE

A. Testing shall be performed by Contractor's Vendor's independent certified testing laboratory approved by MTS.

B. The Contractor shall provide laboratory certification that ballast material meets the Specifications of this Section.

C. If the Contractor observes material not suitable for work, or not in compliance with this part, MTS must be notified within three (3) hours of discovery of condition.

D. The product delivered shall be from the same source from which samples were tested and found to conform to the Specification and shall be of the same type and quality of that which was tested.

1.04 DELIVERY, STORAGE AND HANDLING

A. Prepared sub-ballast and aggregate base shall be handled in such a manner that it is kept clean and free from segregation, and when delivered, the sub-ballast and aggregate base shall be clean and free from rubbish or any substance, which might foul the ballast.

B. Blending, stockpiling, and other production and handling operations must be managed by the Contractor's Vendor to minimize segregation of finished product.

C. Stockpiling operations shall minimize breakage or excessive fall in stockpiling operations.

D. The movement of wheeled or tracked machines over stockpiled or installed Materials shall be limited.

E. The material will be supplied to the Engineer in accordance with the delivery requirements, freight on board destination. The material when purchased is to be delivered to areas in San Diego County at a place designated by the Engineer. The delivery must be coordinated with the Engineer prior to shipping and loading. Orders can be combined and shipped on or before the delivery scheduled with approval by the Engineer. A complete Bill of Material for each order will be submitted with modes, dates, contents, and destinations of shipments clearly indicated. A complete shipping list with reference to blanket purchase agreement, if applicable, will accompany all deliveries of materials.

F. Contractor's Vendor shall be responsible for unloading sub-ballast and aggregate base under the direction of Authority or authorized representative.

PART 2 – PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. Sub-ballast shall conform to the gradation and quality requirements for Caltrans Specifications Section 26-1.02A, Class 2 Crushed Aggregate Base, 3/4" Maximum. In addition, the aggregate shall consist entirely of crushed rock with a minimum of 75 percent of the material having at least two fractured faces. No reclaimed asphalt or concrete shall be included in this material.

B. Aggregate base shall be the same material as sub-ballast.

PART 3 – EXECUTION

3.01 GENERAL

A. Promptly notify MTS of any conflicts, omissions or needed clarifications arising from the use of the designated drawings, standards or specifications.

3.02 SCHEDULE

A. Contractor shall contact the Engineer, 48 hours prior to the date of delivery of materials.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for the requirements of this Section unless otherwise provided for.

B. Measurement for “Sub-ballast” shall per cubic yard (CY).

4.02 PAYMENT

A. Unless otherwise stated full compensation for complying with the requirements of this Section shall be considered as included in the contract prices paid for the various items of work involved, unless otherwise stated, and no additional compensation will be allowed therefore.

B. “Sub-ballast”, furnished and installed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

SECTION 34 11 33
CONCRETE RAILROAD TIES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section specifies the material requirements and performance criteria for production and inspection of mono-block, pretensioned, prestressed concrete ties for standard gage track (4’ – 8 ½”) to be furnished in accordance with the Contract Documents.

B. Work included in this Section encompasses work necessary for the manufacturing and production of concrete crossties and guardrail concrete cross ties both with or without neoprene pads.

1.02 REFERENCES

A. American Concrete Institutes (ACI):

1. 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete

2. 214R, Standard Practice for Evaluation of Strength Test Results of Concrete

3. 301, Specifications for Structural Concrete

4. 318, Building Code Requirements for Structural Concrete

B. American Railway Engineering and Maintenance of Way Association (AREMA)

1. Manual for Railway Engineering, Volume 1, Chapter 30, Part 4.2.3 Duggan Concrete Expansion Test

C. ASTM International (ASTM)

1. A421, Standard Specification for Uncoated Stress-Relieved Steel Wire for Prestressed Concrete

2. A536, Standard Specification for Ductile Iron Castings

3. A881, Specification for Steel Wire, Deformed, Stress-Relieved or Low-relaxation for Prestressed Concrete Railroad Ties

4. A886, Standard Specification for Steel Strand, Indented, Seven-Wire Stress Relieved for Prestressed Concrete

5. C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field

6. C33, Standard Specification for Concrete Aggregates

7. C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

8. C109, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in Cube Specimens

9. C143, Standard Test Method for Slump of Hydraulic Cement Concrete

10. C150, Standard Specification for Portland Cement

11. C191, Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle

12. C192, Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory

13. C260, Standard Specification for Air-Entraining Admixtures for Concrete

14. C295, Standard Guide for Petrographic Examination of Aggregates for Concrete

15. C359, Standard Test Method for Early Stiffening of Hydraulic Cement (Mortar Method)

16. C430, Standard Test Method for Finess of Hydraulic Cement by the 45-um (No. 325) Sieve

17. C457, Standard Test Method for Microscopical Determination of Parameters of the Air-Void System in Hardened Concrete

18. C494, Standard Specification for Chemical Admixtures for Concrete

19. C617, Standard Practice for Capping Cylindrical Concrete Specimens

20. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

21. C666, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

22. C403, Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance

23. C1017, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete

24. C1293, Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction

25. C1567, Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

D. Precast/Prestressed Concrete Institute (PCI)

1. MNL 116, Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products

1.03 DEFINITIONS

A. Inspector: the duly authorized representative of SDMTS

B. Manufacturer: manufacturer of concrete ties

C. Supplier: supplier of materials or components for use in concrete ties

D. Source: a plant where a material or component used in the concrete ties, is produced.

1. For aggregates, the strata or quarry face from with the aggregate is obtained

E. Bed: a prestressing bed with forms placed end to end. Each bed is only one form wide.

F. Form: a battery form, one tie long, with 5-8 cavities in which ties are cast upside down

G. Line: a series of ties end to end on a prestressing bed. Each line is only one tie wide.

H. Long line process: ties being made on a bed with at least ten forms end to end and on which the prestressing wires are tensioned between fixed abutments, independent of the forms, and prior to placing concrete.

I. Outside test laboratory: a testing laboratory, independent of the manufacturer, which conforms to ASTM E994 and is approved by the Engineer.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements

1. Compliance: Manufacturer’s certification that the materials delivered are in compliance with the specification.

a. Certification that the proposed concrete ties and shoulder inserts will satisfy all test requirements as specified herein.

b. Certification shall include qualified laboratory test results, calculations and performance reports from a proven fastener design with five (5) years of operational service.

2. Tests:

   a. Certified test results, as required to demonstrate compliance of materials specified herein shall be submitted to the Engineer. The test results for the following items shall be supplied:

      1) Cement

      2) Aggregates

      3) Water

      4) Concrete

      5) Rail Seat Pads

      6) Fasteners

      7) Electrical Properties

      8) Tie Testing

3. Design Analysis:

   a. A complete design analysis of the proposed tie and associated hardware, verifying the tie's capabilities to pass the test requirements contained in the Specifications and verifying the adequacy of the materials for their intended use.

   b. Design submission shall include:

      1) Structural detail Drawing(s) of the proposed tie and fastening assembly.

         a) The Drawing shall include tie configuration, prestressed strand size and location, and details of the shoulders with their fabrication tolerances.

      2) All structural calculations shall be based upon current industry standards for prestressed concrete design and the ACI standard requirements applied as follows:

         a) Calculations shall include moment analysis for the tie under no-cracking conditions and shall consider all long-term permanent prestress losses.

      3) Concrete batch compositions:

a) Submission shall include physical and chemical composition of the batch; including, type and source of cement admixtures used, source and gradation of aggregates, source and quality assurance of water, curing, procedure, including concrete strength at prestress transfer, and separation of the ties from the form.

b) It is the Contractor's responsibility to ensure that the concrete composition and quality is suitable for its intended purpose.

4) Specifications for pretensioning tendons:

a) Documentation confirming the quality of material used in these elements.

5) Cure Time

a) The length of cure time necessary for the tie to reach 7,000 psi strength prior to delivery for placement in track.

4. Submit Shop Drawings prepared by the manufacturer for the standard "E-clip" concrete ties and the guardrail equipped "E-clip" concrete ties both with and without neoprene pads, if required.

5. Submit to the Engineer Shop Drawings prepared by the manufacturer for the forms and for the gages. Forms and gages shall not be used until the Plans have been approved by the Engineer.

6. Before production commences, submit a Quality Control Manual prepared by the manufacturers for approval by the Engineer.

a. This Manual shall include the following details:

1) Management organization

2) Responsibilities of production and quality control personnel

3) Plant Standards

4) Checks to be carried out by production personnel

5) Inspection and testing to be carried out by quality control personnel

6) Procedures for approving sources of materials and for ordering materials

7) Procedures to ensure that only materials complying with these Specifications are used

8) Procedures to ensure all measuring equipment is properly calibrated

9) Procedures to ensure that ties are not shipped until acceptance load testing is complete and that rejected ties are clearly marked and segregated from good ties.

10) Quality Audit procedures

b. The Manual shall be revised or amended whenever there are changes in personnel, responsibilities, or other items contained in it.

7. Submit written reports to the Engineer prepared by the manufacturer documenting strict adherence to the Quality Control Program and the Production Program.

1.05 QUALITY ASSURANCE

A. Qualification of the Manufacturer

1. The manufacture shall have a minimum of 5 years' experience, in a fixed location, of the large-scale manufacture of pretensioned prestressed concrete railroad crossties by the long line process.

a. The manufacturer's existing plants in the USA shall have been certified under the PCI Plant Certification Program.

b. If the manufacturer's existing plants are outside the USA, they shall have been certified by the equivalent National Certification Organization for that country.

2. The manufacturer shall show to the satisfaction of the Engineer that he has, or can obtain, the necessary and proper equipment, tools, facilities and means, and that he has the experience, ability and financial resources to perform the work within the time specified and to the quantity standards required.

3. Ties shall be manufactured by the long line process with 5 to 8 lines per bed.

4. If the manufacturer produces the ties in a new plant, that plant shall be certified under the PCI Plant Certification Program within 6 months from the start of production.

5. The requirements of ACI 301 and PCI MNL 116 shall apply except where other requirements are stated in these Specifications.

1.06 DELIVERY, STORAGE AND HANDLING

A. Concrete ties shall be shipped in open-top cars or flatbed truck trailers

1. Ties shall be securely braced for transportation to prevent any movement that will cause damage.
2. Ties shall be shipped in a horizontal position and braced with spacer blocks in such a manner that the top surface or cast-in-place hardware does not contact ties loaded above.

3. Ties shall not be loaded higher than the top of the cars and not more than six layers deep.

B. Ties must be delivered, unloaded, and neatly stockpiled as necessary on the project site by the Contractor.

1. When handling ties in the plant, yard or at the delivery site, ties must not be dropped or otherwise damaged.

2. Ties must be stacked on firm level ground, not more than 10 ties high and supported on dunnage at the rail seats only.

PART 2 – PRODUCTS

2.01 GENERAL MATERIALS

A. The manufacturer shall only use materials from sources approved by the Engineer.

1. For cement, the source of clinker and the source of ground cement will be approved by the Engineer.

2. All tests for cement and aggregate shall be completed in accordance with this Specification before approval of materials is requested from the Engineer.

B. Adequate time shall be allowed for the Engineer to approve new sources.

1. Trial concrete mixes shall be cast at least 90 days prior to approval being requested.

C. For aggregates to be supplied from a new source that has not been previously tested, a minimum period of 224 days shall be required for testing to ASTM C227 prior to approval being requested.

1. Alternatively, 70 days shall be allowed for the Osmotic Cell Test. SDMTS will accept previous test results on these aggregates from a qualified laboratory performing these tests as required to the standards of the appropriate ASTM which has been supervised, signed and sealed by a California Registered PE or Geologist.

2.02 CONCRETE

A. The minimum 28-day-design compressive strength of concrete used for concrete ties shall be 7000 psi as determined in accordance with ASTM C39.

1. The test cylinders shall be made and stored as specified in ASTM C31.

B. Batching and Mixing

1. Aggregates and cement shall be measured by weight.

a. The weight of aggregate shall be based on a saturated surface dry condition corrected for free moisture.

2. Water shall be measured by weight or volume, and admixtures shall be measured by volume.

3. Each batch of concrete shall be mixed separately in a pan mixer or approved horizontal drum mixer located at the site of the concrete tie manufacturing process.

4. No water shall be added to concrete after discharge from the mixer.

5. The quantity of each material used in each batch of concrete shall be automatically recorded.

C. Proportioning

1. Mix proportions shall be developed using the method in ACI 301, Section 3.9. The cement content shall be not less than 600 lbs/cy

D. Temperature

1. The temperature of freshly mixed concrete shall not exceed 90° F.

E. Curing

1. Immediately after placing and consolidating, the concrete, the exposed surface shall be protected from rapid evaporation.

2. Concrete shall not be placed in forms whose temperature is less than 40° F and the concrete temperature shall not be allowed to fall below 50 ° F between casting, and transfer of prestress.

3. If heat curing is used, the forms may be preheated to avoid cooling of the concrete after placing but the temperature of concrete shall not exceed 90 ° F during the first three (3) hours and 105 ° F during the first four (4) hours (ASTM C403).

4. The rate of temperature rise in the concrete shall not exceed 35° F per hour and the maximum concrete temperature shall not exceed 158° F.

   a. Transfer of prestress shall not be carried out at a concrete temperature above 135° F.

   b. The heating method used shall be such that all ties in a bed are at a similar temperature.

5. During curing, the temperature at the center of the rail seat cross section of one tie in each bed shall be automatically recorded.

F. Testing Fresh Concrete

1. The first batch on any bed shall be tested in accordance with this Specification and if this requires no adjustment to the mix, a further test shall be made after approximately 25 cubic yard has been poured.

   a. If the first batch requires adjustment to the mix each subsequent batch shall be tested until no further adjustment is necessary and then a further batch shall be tested after approximately 25cubic yard has been poured.

2. Slump

   a. When measured in accordance with ASTM C143, the slump shall not exceed 2 inches when concrete is placed in the forms.

   b. A minimum of two measurements of slump shall be made, on separate batches of concrete, for each bed cast or each 50 cubic yard concrete whichever is less volume of concrete.

3. Air Content

   a. Air entrainment of the concrete shall comply with the following table in areas that are subject to freeze/thaw conditions

PERCENT AIR ENTRAINMENT STAGE	AIR CONTENT
Plastic Concrete	4.5% ±0.7%
Cured Concrete	3.5% ±0.5%

G. Testing Hardened Concrete

1. Compressive Strength

a. When measured on 4” x 8” cylinders capped in accordance with ASTM C617 and tested in accordance with ASTM C39, the minimum compressive strength shall be

1) At transfer of prestress: 4500 psi

2) At 28 days: 7000 psi

b. The minimum number of test cylinders per bed shall be

1) For transfer strength: 4

2) For 28 day strength: 3

c. The cylinders shall all be made from one batch of concrete and the slump and air content shall also be measured on the same batch.

d. The cylinders shall be cured with the ties until transfer of prestress, in such a way that the temperature of the cylinders is with +0˚ -15° F of the temperature of the ties.

e. After transfer of prestress, the 28-day cylinders shall be cured in accordance with ASTM C192.

2. As an alternative to cylinders 4 inches cubes may be used to measure the compressive strength at transfer of prestress.

3. Two cylinders shall be tested for transfer strength.

a. If either result is less than 4500 psi, curing shall be continued for at least a further one (1) hour.

b. No bed shall be detensioned until at least two cylinders achieve a strength of 4500 psi.

c. If all transfer cylinders are tested without conforming to this requirement the bed may be detensioned if at least one cylinder achieves 4500 psi.

d. An additional set of ties from one form shall then be acceptance load tested.

e. If no transfer cylinders achieve 4500 psi, the bed may be detensioned providing, all ties are acceptance load tested.

4. The strength at 28 days shall be satisfactory if the average of three cylinders is not less than 7000 psi and no individual result is less than 6500 psi.

H. Durability

1. One tie shall be selected at the start of production and thereafter every three months, for air void content and durability factor tests by an outside testing laboratory.

2. The air void content shall be measured in accordance with ASTM C457 on the top, center and bottom of a cross section slice cut from the rail seat of a tie.

a. The measured air void content shall be not less than 3.0 percent and the air void spacing factor shall not exceed 0.008 inch.

3. The durability factor shall be measured in accordance with ASTM C666 on a minimum of 4 prisms of concrete taken adjacent to the samples used for the durability tests as required by this Specification.

a. The durability factor shall not be less than 90 percent.

4. The frequency of testing, for durability shall be increased at the Engineer's request if there is evidence that not all ties satisfy the requirements of this Specification.

I. Chloride

1. The water-soluble chloride content of the concrete shall not exceed 0.06 percent expressed as chloride ion by weight of cement.

a. This shall be measured by an outside testing laboratory on fresh concrete or on individual materials in the mix when mix proportions are developed in accordance with Paragraph entitled “Proportioning” in the Article “Concrete” of this Specification and thereafter, by tests at three monthly intervals which include materials from all sources in use.

J. Alkali - Silica Reactivity

1. The composition of the cement, fine aggregate shall be analyzed and tested in accordance with ASTM C33, ASTM C227, and the "Duggan" Concrete Expansion Test so as to ensure that the resulting combination does not produce a concrete subject to deleterious expansion resulting from an alkali-silica reaction.

a. These tests are to be repeated every 6 months, from each source, unless otherwise defined in this Specification.

b. In addition, whenever a component or source is changed, new tests will be performed on these components or sources.

2.03 CEMENT

A. Cement shall conform to ASTM C150, and low alkali.

1. Cement alkali content of Na2O equivalent (Na2O + 0.658 K2O) shall be as low as possible and not greater than 0.6 percent.

2. The false set penetration, when tested in accordance with ASTM C359, shall be not less than 50 mm at intermediate times and 40 mm after remix.

B. Separate random samples of cement shall be taken each day to represent the cement used on each bed.

1. Each sample shall be not less than 1 gallon and shall be clearly identified with the date and bed number.

2. Each sample shall be kept in air- tight container until the corresponding 28- day cylinder tests have been carried out and results accepted by the Engineer.

C. Not more than two sources of clinker or ground cement shall be used by the manufacturer during any one-month.

1. Cement from each source shall be clearly identified and stored in separate weather tight silos.

2. If two sources of cement are used on one bed, the tests in Paragraph 2.02E herein shall be performed on the first batch of concrete made with each cement and if no adjustment to either mix is required, testing shall continue as single design as required in Paragraph 2.02E. herein Strength tests as required in Paragraph 2.02.F.1 herein shall also be conducted on concrete made with each type of cement.

D. Cement mill certificates shall be provided weekly by each supplier and shall include the results of the following tests on cement delivered during that week.

1. Under no circumstances shall substitution of cement be permitted unless it has been pre-qualified through the tests listed in this Section.

   a. Fineness by air permeability (ASTM C204)

   b. False Set (ASTM C359) - Penetration at 3, 5, 8, and 11 minutes and remix

   c. Setting Time (ASTM C191)

   d. Compressive Strength (ASTM C109) at 1 day, 3 days, and 7 days

   e. Chemical Analysis (ASTM C114) - INCLUDING SIO AI2023, Fe2O3, CaO, MgO, SO3, K2O, Na2O and calculated alkalis as N2O equivalent, C3S, C2S, C3S, C4AF

   f. Residue on 325-mesh sieve (ASTM C430)

E. At least once during every three months, a randomly chosen sample of cement from each source used shall be analyzed for alkali content in accordance with ASTM C114 by an outside testing laboratory.

2.04 AGGREGATES

A. Both fine and coarse aggregates shall meet the requirements of the AREMA Specifications for Aggregates, Part 1, Section 1.3, Chapter 8 of the AREMA Manual.

B. Aggregates shall be natural aggregates complying with ASTM C33 Class 4S. The maximum combined coarse aggregate percentage wear shall not exceed 39 percent.

C. The manufacturer shall provide evidence that concrete containing aggregate from the proposed source with a cement content and alkali burden similar to the job mix, has a satisfactory service history of at least 5 years. This evidence shall include structures requiring a Class 4S aggregate.

D. The maximum size of aggregate shall be ¾”. If the coarse or fine aggregate is supplied in more than one size, each size shall be stored separately.

E. Washed aggregate shall be allowed to drain, in stockpiles, before use. All aggregates shall be free from ice when used.

F. In additional to the requirements of ASTM C33, the following tests shall be conducted by an outside testing laboratory.

   1. Petrographic examination to ASTM C295. Examination shall be repeated on aggregate from each new source.

   2. Evaluation of potential alkali reactivity to ASTM C227 or ASTM C1293.

a. A separate test shall be conducted with each job cement and the results shall conform with ASTM C33 at three and six months.

b. This shall be repeated every 6 months for each source.

c. When there is insufficient time for testing, to ASTM C227 or ASTM C1293, potential alkali reactivity may be evaluated by the Osmotic Cell Test* developed by PCA.
1) The flow rate at 30 days shall not exceed 1.5 mm per day. Proceedings 6th International Conference on Alkalis in Cement, Danish in Concrete Institute, Copenhagen, 1983.

3. Evaluation of potential alkali carbonate reactivity

a. Aggregates containing carbonate shall be tested in accordance with ASTM C586.

2.05 WATER

A. Water in mixing concrete and washing aggregates shall be potable and free of injurious amounts of oil, acid, alkali, inorganic matter, or other deleterious substances, that may be harmful to concrete or steel as specified in AASHTO T-26.

1. In addition, the mixing water, including that portion of the mixing water contributed in the form of free moisture on the aggregates, shall not contain a chloride ion content greater than 400 ppm.

2.06 ADMIXTURES

A. Chemical admixtures for concrete shall conform to ASTM C494.

1. Admixtures containing chlorides, fluorides, sulfides, or aluminum powder shall not be used.

2. Only liquid admixtures shall be used.

3. Air-entraining, admixtures shall conform to ASTM C260 and contain neutralized Vinsol Resin or other approved natural resins as the active ingredient.

4. Water reducing admixtures shall only be used with the approval of the Engineer. They shall conform to ASTM C494, Types A, B, D, or E.

a. Water-reducing admixtures, retarding admixtures, accelerating admixtures, water reducing and retarding admixtures, waterreducing and accelerating admixtures, and high range water reducing admixtures, when authorized by the Engineer, shall conform to ASTM C494 or ASTM C1017 in the case of superplasticizers.

5. Other mineral admixtures shall not be used, except for Class F Flyash as noted below, unless mix and quality control program are specifically approved by the Engineer.

6. Class F Flyash, if used, shall conform to ASTM C618. The properties shall not exceed the following

   a. 1.5 percent available alkalis and 6 percent loss on ignition.

   b. Mill test certificates shall accompany each lot of Class F Flyash used in tie production in order to ensure consistency.

   c. The combined mix design with admixtures, if used, shall be tested using ASTM C1567 on the proposed job mix to verify alkali-silica reaction (ASR) potential.

2.07 PRESTRESSING TENDONS

A. General

1. Prestressing shall be indented wire strand or stress relieved wire.

2. The wires shall comply with ASTM A881 or stress relieved wire complying with ASTM A421.

3. The minimum tensile strength of the wire shall be 225,000 psi.

4. Strands for pretensioning tendons shall conform to ASTM A886.

5. All tendons shall be thoroughly cleaned of drawing lubricants before shipment.

6. Tendons from one source only shall be used on each bed.

7. Tendons shall not be contaminated with mud, oil, grease, or chloride salts.

8. Loose rust shall be removed during stringing and tendons pitted due to corrosion shall not be used.

B. Pretensioning

1. During stringing, tendons shall not become contaminated with form release agent.

2. Each tendon shall be individually tensioned with the same initial force of between 5 percent and 20 percent of the final force using, a hydraulic jack.

   a. The final force shall then be applied by multiple tensioning with hydraulic jacks.

   b. The force shall be measured by pressure cases located immediately adjacent to each jack and be measured by elongation.

   c. The forces measured by the two methods shall agree to within 5 percent.

C. Detensioning

1. Stress transfer shall be performed in a controlled manner with hydraulic jacks.

a. The forms shall be free to move and the stress in all tendons shall be transferred at the same time and the same rate.

b. No tendon shall be cut until it is completely detensioned.

2. If any tendons break during, curing, all ties shall be load tested in Rail Seat Positive in accordance with Paragraph entitled “Acceptance Load Testing” in Article “Testing of Ties”, starting with the ties from the form adjacent to the abutment where the tendon broke and moving towards the other abutment, when a point on the bed is reached at which all ties from one form pass the test, the remaining ties shall be accepted without further load testing.

2.08 RAIL FASTENING COMPONENTS

A. Rail fastening system shall be resilient, thread-less and adjustable in three steps without dismantling the fastener. The three steps shall be

1. Retracted: Permits installation or removal of rail

2. Intermediate: Permits longitudinal rail movement

3. Clamped: Provides full rail clamping force

B. Fasteners shall be comprised of as few components as economically and technically feasible for ease of assembly, disassembly, and maintenance. The rail clips, rail seat pads, and insulators shall be furnished by rail clip manufacturer and shall be compatible with concrete tie shoulders.

C. Configure fasteners so that the rail clip can be installed or replaced in the field by one person using standard readily available track tools.

D. Fasteners shall have, on both sides of the rail base, a positive means of preventing more than 1/8 IN total lateral movement of the rail base relative to the fastener in case of failure or loosening of one or both rail clips. The positive means shall extend at least 3/8 IN above the base of rail in the installed position.

E. Fasteners shall be Pandrol “E-clip” or approved equal.

F. Rail Clips

1. Rail clips shall not be dependent on elastomeric components in torsion. The clips shall be reusable after removal through repeated applications without any effect on the operating performance of the system.

2. The minimum vertical hold down force for spring clips shall be 2,500 LBS with total minimum force of 5,000 LBS per rail fastener assembly.

G. Insulators

1. An insulator shall be used between the rail clip, shoulder insert and the rail to position rail to the proper gauge, provide electrical insulation, reduce abrasion, and transfer the rail loading to the rail clip and shoulder insert.

2. The insulator shall be capable of withstanding degradation from oxidation, water, alkali, petroleum oils, synthetic lubricants, and sunlight without having detrimental effect on the performance of the insulator.

3. Insulator dimensions shall be appropriate to provide standard gauge dimension.

4. Insulators for different uses (adaptive insulators) shall be of different colors or different appearance for ease in identification.

H. Rail Seat Pads

1. Provide rail seat pads compatible with the rail fastening system with a shape which provides positive means of preventing movement of the pad parallel to the rail.

2. Submit results of industry standard tests concerning the above properties.

I. Iron Shoulders

1. Iron Shoulders shall be Pandrol cast shoulders for “E-clip” or approved equal, sized for 115 lbs., with adaptive insulators, pads, and clips.

2. Ductile iron shoulders shall be obtained by the manufacturer and shall conform to ASTM A536 Grade 60-40-18 or 65-45-12.

   a. They shall be marked with the part number, supplier's identification and pattern number.

   b. At least four Y block specimens shall be cast from each heat, or in continuous casting, from each four-hour period.

   c. All specimens shall be heat treated under the same conditions as the shoulders they represent.

   d. Tension test specimens with a cage length of 2 inch shall be machined from the Y blocks and one tension test shall be made for each heat or each four-hour pour period.

   e. If the elongation and tension test results do not conform to ASTM A536, a further specimen shall be tested and if this fails the cast shall be reheated or rejected.

f. The shoulders and test specimens may not be reheated more than once

1) After reheating, two test specimens shall be tested.

2) If either of these fails to conform to ASTM A536, the cast shall be rejected.

g. The shoulders shall be free from burned-on sand, cracks, cavities, injurious blowholes and other defects.

1) All fins shall be removed from the vertical faces of the head of each shoulder.

2) Fins across the top of the head shall not exceed 1/32 inch and below the head, fins shall not exceed 1/16 inch.

3) At gates, there shall be no cavity in the shoulder more than 1/8” below the general surface level.

h. Go and No Go inspection gages shall be used to check that tolerances conform to the Plans.

1) A sampling plan for Acceptable Quality Levels of 1 percent for major dimensions and 4 percent for minor dimensions shall be used.

2) The manufacturer shall decide which are major and minor dimensions in consultation with the Engineer (through the Contractor).

3. Iron shoulders shall be free of mud, oil, loose rust and other contamination when cast into ties. They shall be rigidly secured in the forms during casting and shall not move within the concrete when the securing device is released.

4. Location within the ties shall comply with the tolerances on the tie Plans.

5. Ductile iron shoulders shall conform to the dimensions on the Plans issued by the fastening clip suppliers.

2.09 TIE DIMENSIONS, CONFIGURATION AND WEIGHT

A. Dimensions, configuration and weight shall conform to the following

1. Alternative designs of concrete ties will be considered if they have the same general profile, and length.

2. Alternative designs must have a successful history of performance of at least five years service under comparable service conditions.

3. Any alternative design must be specifically approved by the Engineer.

B. Dimensions

1. General

a. Weight: Maximum weight shall be 750 lbs

b. Base Width: 10-3/8 inch (±1/4 inch)

c. Height, at rail seat: 8 inch (+3/16 inch -1/8 inch)

2. Cross Ties

a. Length: 8 FT 3 inch (±1/8 inch)

b. Height, at center of tie: 6-1/4 inch (+3/16 inch -1/8 inch)

c. The rail seat shall provide for a cant of 1 in 40 toward centerline of track

3. Track Gauge shall be 4” – 8 1/2”

2.10 FLEXURAL STRENGTH

A. Flexural strength performance and test requirements shall comply with Section 4.4, Chapter 30 of AREMA Manual.

1. Results per Section 4.9, Chapter 30 of the AREMA Manual shall be provided.

2. The minimum flexural performance requirements for the concrete ties shall be as follows

a. Positive rail seat moment of 280 inch-kips static

b. Negative rail seat moment of 146 inch-kips static

c. Static center positive moment of 110 inch-kips

d. Static center negative moment of 162 inch-kips

2.11 LONGITUDINAL AND LATERAL RAIL RESTRAINT

A. The concrete tie and elastic fastener shall provide longitudinal and lateral rail restraint as specified in Section 4.6 and Section 4.7, Chapter 30 of the AREMA Manual.

2.12 ELECTRICAL PROPERTIES

A. Each concrete tie, together with its elastic fastening, shall comply with Section 4.8, Chapter 30 of the AREMA Manual.

2.13 TESTING OF TIES

A. Prior to approval of the concrete tie design, tests specified in Section 4.9, Chapter 30 of the AREMA Manual, unless otherwise modified by this Section, shall be performed at testing facility approved by the Engineer and results provided to the Engineer.

1. Surface Finishes

2. Every tie produced shall be visually inspected

3. Two ties which, in the opinion of the Inspector, show the required bottom surface finish and two ties which in the opinion of the Inspector show the maximum allowable rail seat defects shall be set aside as comparison standards for acceptance of ties.

4. The bottom surface of each tie shall have a rough struck, leveled surface

   a. Projections from and indentations into the general level of the surface shall not exceed 3/16 inch.

   b. The indent pattern shall be approved by the Engineer.

5. The surface of the rail seat shall have a smooth, formed finish not inferior to the comparison standards.

   a. No forms, seams or warpage in the rail seat will be allowed.

   b. The rail seat flatness shall not exceed a 1/32 inch difference across any part of the rail seat.

      1) When referring to voids and rail seat flatness in the rail seat area, the rail seat will be defined as "area between adjacent shoulders and edge of tie to edge of tie" and the area adjacent to the shoulder and 3/8 IN beyond the face of the front face of the shoulder.

      2) Grinding or shaving with a jig is acceptable.

      3) Freehand grinding is not acceptable, unless approved by the Engineer.

      4) Filling of rail seat voids with fillers is not acceptable.

      5) No rubbing, brushing or other treatment shall be used on the rail seat.

6. All ties will require a lateral resistance pattern to be placed on the side of the tie.

   a. The Engineer will review for approval the design, but not provide the design of this pattern.

b. The tie shall provide a minimum lateral in a single tie push test of 5,000 pounds.

c. The tested tie must be in track on a major heavy haul railroad with adequate ballast depth.

d. Proof of the lateral resistance design will be through multiple single tie tests as performed by the AAR.

e. The tie manufacturer assumes all responsibility for maintenance and design of these forms and patterns.

f. The Engineer will not accept a tie without a proven pattern.

7. Other formed surfaces shall be smooth and holes shall not exceed 1/4 inch in depth and diameter.

a. Ties with a limited number of holes up to 3/8 inch diameter but not exceeding 1/4 inch in depth will be accepted providing that holes are filled with a mixture of 3 parts washed sand, 1 part cement and 1 part SBR latex measured by volume or other accepted material.

8. Holes in tie ends shall not exceed 3/8 inch diameter and 1/2 inch in depth or 1/4 inch diameter and 1 inch in depth below the general surface level of concrete.

9. Corner breakage at tie ends shall not exceed 1 inch in depth.

10. Ties with visible cracks shall be rejected.

11. Prestressing wire shall not protrude more than 1/8 IN beyond the tie end and shall not have ragged ends, which would be hazardous in handling.

12. The surfaces where fastening components bear on the iron shoulders shall be 100 percent free from concrete or other foreign materials.

B. Tie Dimension Inspection

1. Approved Go and No Go gages shall be used to check the following

a. Out to out shoulder spacing

b. Adjacent shoulder spacing

c. Shoulder height

d. Rail seat cant

e. Rail seat flatness

f. Rail seat wind or warpage

g. Wire location

2. A "Go and No Go" gage is the basis for acceptance and rejection. No interpretation of a gage is acceptable.

3. The inspector may gage as often as is required or as the Engineer feels necessary to QC confidence. If a problem is found then it is the responsibility of the Manufacturer to provide inspection as directed by the Engineer (100 percent if necessary) until the extent of the problem has been determined or the rework has been properly confirmed.

4. When new forms, modified forms or repaired forms are used, the first tie cast in each cavity shall be checked with Go and No Go gages and normal measuring equipment to insure conformity with dimensional tolerances on the tie Plans.

5. All ties selected for routine acceptance load testing shall be checked as described in this Specification.

6. Wire pattern shall

a. Ensure 3/4 inch minimum concrete cover of prestress tendons.

b. Be placed accurately to prevent electrical short between embedded fasteners.

c. Achieve flexural bending strength in Section 2.10.

7. Wire pattern for all ties on both ends shall be visually inspected every day.

C. Acceptance Load Testing

1. All acceptance load testing shall be carried out on the day that detensioning is performed. Contractor must provide sufficient notice to the Engineer so as to allow for Inspectors to be present during acceptance load testing.

2. Production Start-up Testing: From the first bed cast under any contract, all the ties from one form, selected at random, shall be load tested as follows

a. Rail seat positive and bond development at one end.

b. Rail seat negative at the other end.

c. If the ties meet these test requirements, further beds may be cast.

d. If any tie fails to meet the test requirements, two further ties shall be taken from the same line and, if either of these ties fails to meet the test requirements, each tie in the line shall be individually tested, excluding the bond development test.

1) One further bed shall then be cast and the test procedure repeated.

2) When the test ties meet these requirements an additional four (4) ties shall be randomly selected from the bed already cast and tested as follows

a) Two (2) ties tested for Tie Center Negative Moment Test

b) Two (2) ties tested for Tie Center Positive Moment Test

3) If any tie fails to meet test requirements, two further ties shall be taken from the same line

a) If either of the ties fail, then the batch is rejected

b) When the test ties meet all of the production startup testing requirements, further beds may be cast

3. Routine Production Testing

a. After initial production acceptance testing routine acceptance testing shall be carried out on all beds cast.

b. All ties from one form, selected at random from each bed cast, shall be load tested as follows

1) Rail Seat Positive at one end

c. Every sixth (6th) tie selected for test shall additionally be tested as follows

1) Rail Seat Positive at one end to first crack

2) Rail Seat Negative at other end to first crack

d. If any tie fails to comply with the test requirements in Paragraphs 2.13 C. 3 b. and c. above, two (2) additional ties shall be taken from the same line and all tests repeated.

1) If either of these ties fails the test, each tie in the line shall be tested.

e. One tie per day shall be selected at random from ties subject to Rail Seat Positive test and additionally tested for bond development.

1) If the tie fails to conform to the requirements of this test, two further ties from the same line shall be tested.

a) If either of these fails the test, one tie shall be tested from each bed cast on the same day as the ties, which failed the test.

b) No ties from beds with test failure shall be shipped until a test program to identify ties with unsatisfactory bond is agreed with the Engineer and the tests completed.

f. One tie per day shall be selected at random from ties subject to Rail Seat Positive Test and additionally tested for Tie Center Negative Moment.

1) If the tie fails to conform to the requirements of this test, two further ties from the same line shall be tested. If either of these ties fails, each tie in the line shall be tested.

D. Rail Seat Positive Test

1. The tie shall be supported in a hydraulic testing machine with loading points so arranged that the load is applied at right angles to the base of the tie midway between the supporting pads. Test configuration shall be in accordance with Chapter 30 of the AREMA Manual.

2. A test load of 52 kips shall be applied at a rate not exceeding 10 kips per minute and maintained for at least three minutes to permit proper inspection. Both sides of the tie shall be inspected.

3. A tie will be considered to have failed the test if at the 52 kips test load, it contains a structural crack when viewed under 5-power magnification. The illumination at the surface shall be not less than 125 FT candles.

4. When a tie is to be tested to first crack loading shall continue, after inspection at the 52 kip load until a crack 1 IN in vertical length is observed. The load shall then be recorded.

E. Rail Seat Negative Test

1. The tie shall be supported in a hydraulic testing machine, in accordance with the test configuration in AREMA Manual, Chapter 30.

2. The testing procedure shall be in accordance with Chapter 30 of the AREMA Manual.

3. A test load of 29 kips shall be applied at a rate not exceeding 5 kips per minute and maintained for at least three minutes to permit proper inspection. Both sides of the tie shall be inspected.

F. Bond Development Test

1. The tie shall be supported in a hydraulic testing machine, in accordance with the test configuration in AREMA Manual.

2. Dial gages reading, to 0.001 inch shall be attached to the tie at the end being tested, to measure any movement relative to the tie of the outermost wire in each of the bottom corners of the tie.

3. A test load of 78 kips shall be applied at a rate not exceeding, 5 kips per minute and maintained for a period of five minutes.

    a. The wire movement shall not exceed 0.001 inch

    b. If during this test, a structural crack more than 3 inch long occurs, the test tie shall be rejected after completion.

G. Tie Center Negative Moment Test

1. The tie shall be supported in a hydraulic testing, machine in accordance with the test configuration in the AREMA Manual.

2. A test load of 12 kips shall be applied at a rate not to exceed 5 kips per minute and maintained for at least 3 minutes to permit proper inspection. Both sides of the tie should be inspected.

H. Tie Center Positive Moment Test

1. The tie shall be supported in a hydraulic testing machine in accordance with the test configuration in the AREMA Manual.

2. A test load of 8 kips shall be applied at a rate not to exceed 5 kips per minute and maintained for at least three minutes to permit proper inspection. Both sides of the tie shall be inspected.

I. Electrical Short

1. Each tie tested in accordance with Paragraph 2.13.C. herein shall be checked for shoulder to shoulder direct electrical shorts under 10 Vdc using an Ohm Meter.

    a. The resistance shall not be less than 100 ohms.

2. If any tie fails this test, all ties from the same line shall be individually tested.

J. Test Reports

1. The Contractor must submit a monthly manufacturer’s test report to the Engineer. This shall include

    a. Number of good ties cast

    b. Number of reject ties cast and reasons for rejection

    c. Concrete compressive strength test results at transfer and at 28 days

d. Average and standard deviation of the 28-day compressive strength results

e. Percentage probability of 28-day compressive strength results failing to meet the minimum specified strength and the actual number of failures

f. Tie first structural crack loads, rail seat positive and rail seat negative

g. Average and standard deviation of the first crack loads

h. Percentage probability of the first crack loads failing to meet the minimum specified load and the number of failures

i. The 28-day Compressive Strength results shall also be presented as frequency histogram

j. The Average 28-Day Strength results, Average first Crack Loads and Percentage probability of failing figures shall also be plotted on graphs showing, the corresponding results for the previous 12 months or since production started, whichever is the shorter period

2. The manufacturer shall retain for a period of 10 years all test certificates provided by suppliers and outside testing laboratories.

a. Results of all inspection and testing carried out by the manufacturer shall also be retained for 10 years.

2.14 INSPECTION

A. Inspectors shall have access, during any and all working hours, to all parts of the manufacturer's plant involved in tie production and to those parts of suppliers plants engaged in producing materials or components for use in the ties.

B. Inspectors shall access to the results of all tests carried out by the manufacturer, suppliers and outside testing laboratories.

2.15 PLANT AND YARD HANDLING

A. When handling ties in the plant or yard, they shall not be dropped or otherwise damaged.

1. Ties shall be stacked on firm level ground, not more than 20 ties high and supported on dunnage at the rail seats only.

2.16 IDENTIFICATION

A. Each tie shall be marked with indented or raised letters or numerals to identify the manufacturer and date/month/year of manufacture.

PART 3 – EXECUTION

3.01 QUALITY CONTROL

A. Testing and inspection shall conform to AREMA Manual, Volume 1, Chapter 30, unless otherwise modified by these Specifications. The cost for testing of materials to be performed by an outside agency shall be provided by the manufacturers and will be included in unit price in the schedule.

B. Ties may be inspected by the Engineer at suitable and convenient places either at points of shipment or destination.

C. The Engineer reserves the right to examine any equipment used for any manufacturing process at any stage of tie production.

D. Material not meeting the requirements of this Specification shall not be used in the work.

E. Quality Control Program

1. Contractor must comply with the following Quality Control Program requirements.

a. A quality control program under which the manufacturer will perform sufficient inspection and tests of all items of work, including those by suppliers or subcontractors in order to ensure conformance to applicable standards, Specifications or Plans with respect to materials, workmanship, fabrication, and identification.

b. The control plan shall specifically provide for

1) Manufacturer’s surveillance (e.g. but not limited to shoulder inserts, wire)

2) Drawing- control (changes)

3) Mold Certification

4) Document control

5) Inspection procedures - in process and final

6) Production test requirements

7) Segregation and disposition of defective material and products

8) Material and process control in plant identifying critical control points

9) Production equipment and instrumentation calibration, maintenance, and data recording

10) Work procedures and instruction

11) Failure reporting analysis and corrective action

12) Sample plans and quality levels shall conform to Military Standard 105D, AQL Level H unless otherwise stated or approved

13) Raw materials standards and controls

14) Records of test and inspections

15) Time and temperature control

16) Strength testing

17) Storage handling and shipment controls

18) Procedures or tests for determining within 24 HRS that the conditions necessary to achieve the 28-day strength have been met, with a margin of safety

19) Quality budget in percentage of contract price

20) Assurance that the plant will meet and continue to meet PCI certification

21) Quality control organization chart showing all QC personnel and their corresponding contact level at SDMTS. QC organization must report independently from Production to Project Manager level or above

22) The person responsible for quality control shall be independent of production management and shall report functionally to the manufacturing, company's senior management

F. Production Program

1. Contractor must comply with the following Production Program requirements. A complete production program shall include

a. Plant layout

b. Form design with tolerances

c. Raw material requirements

d. Primary and alternate sources

e. Material handling

f. Material placement with tolerances

g. Curing method

h. Bond release method

i. Method of vibration

j. Pretensioning and detensioning method for strand or wire

k. Daily production capability

l. Finished tie inventory plan

m. Plan for handling ties from finished product to assigned rail cars or alternate transportation arrangements

n. Flow chart of production process indicating points of control for all significant operations

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Concrete Railroad Ties.

4.02 PAYMENT

A. The contract price paid per track foot for Station Track Replacement shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the Station Track Replacement, therefore no separate payment will be made.

END OF SECTION

SECTION 34 11 33.16
TIMBER TRACK CROSS TIES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies the material requirements and performance criteria for the production and inspection of the wood railroad ties to be furnished and installed in accordance with the Contract Documents.

B. Work included in this Section encompasses work necessary for the manufacturing, production, and handling of wood switch ties, crossties, transition ties, and grade crossing ties. Requirement for the placement of these wood ties and the measurement and payment provisions are specified in the applicable trackwork sections of these Specifications.

C. Per the contract documents, the Owner is providing a portion of the track materials deemed long lead. These materials are covered in Spec Section 01 00 00 General Requirements, 2.01 Owner Furnished Special Trackwork and 2.01 Owner Furnished 115 RE Head Hardened Steel Rail. The Contractor shall provide all additional materials needed to complete the work in the Contract Documents.

D. The Contractor shall furnish timber track cross ties at the grade crossings replacement locations as shown in the Contract Documents.

1.02 REFERENCES

This Section incorporates by reference the latest revisions of the following documents.

1. ASTM International
2. AWPA: American Wood Preserver's Association
    a. C1 – Standard for All Timber Products – Preservative Treatment by Pressure Processes.
    b. C2 – Lumber, Timber, Bridge Ties and Mine Ties – Preservative Treatment by Pressure Processes.
    c. C6 – Standard for Cross Ties and Switch Ties: Preservative Treatment by Pressure Processes.
    d. M2 – Standard for Inspection of Wood Products Treated with Preservatives.
    e. M4 – Standard for the Care of Preservative – Treated Wood Products.
    f. P1 – Standard for Creosote Preservative Use.
    g. P2 – Standard for Creosote Solution.
    h. P3 – Standard for Creosote-Petroleum Solution.

i. P4 – Standard for Petroleum Oil for Blending with Creosote.

3. American Railway Engineering and Maintenance-of-Way Association (AREMA)

a. AREMA Manual for Railway Engineering (AREMA Manual) and Portfolio of Trackwork Plans.

4. RTA: Railway Tie Association - Specifications Timber Crossties and Switch Ties

5. WCLIB: West Coast Lumber Inspection Bureau

6. SANDAG LRT Design Criteria Manual

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following:

1. Compliance: Manufacturer or Supplier's certification that the materials delivered to the site are in compliance with the specification.

2. Tests: Certified test results as required to demonstrate compliance of materials specified herein, and on the Bill of Materials, shall be received by the Engineer before any wood ties are used in the work.

1.04 QUALITY CONTROL AND ASSURANCE

A. Testing and inspection of tie manufacture shall be performed by the Contractor in conformance with AREMA Manual and RTA.

B. Ties may be inspected by the Engineer, at suitable and convenient times and places including points of manufacture, shipment, or destination.

C. The Engineer reserves the right to examine any equipment used for any process or method of treatment at any stage of tie production.

D. Material not meeting the requirements of this Specification shall not be used in the work.

E. The Engineer shall have access to Manufacturer's plant during normal working hours and all Project related procurement and production records for inspection any time during the Contract period of performance.

PART 2 - PRODUCTS

2.01 WOOD CROSS TIES

A. The following hardwood species may be used for cross ties, and switch ties:

1. OAK – HICKORY GROUP: Red Oaks, White Oakes, and Hickories.

2. MIXED HARDWOODS GROUP: Gums, Ashes, Cherry, Walnuts, Birches, Maples, Beech, Locusts, Elms, and Cypress.

B. The following species are not acceptable:

1. OAK – HICKORY GROUP: Live Oak and Blackjack Oak.
2. MIXED HARDWOODS GROUP: Douglas Fir, Hem-Firm, Ponderosa Pine, Lodgepole, Pine, Larch Cottonwood, Willow, Basswood, Hackberry and Poplar,

C. Shipments shall be a minimum of 50% oak – hickory and a maximum of 50% mixed hardwood. Oak-Hickory ties must be air seasoned. Mixed hardwoods may be either air seasoned or boultonized.

D. All ties shall be the full length specified and shall measure the full thickness and width specified throughout. Ties with up to 1” wane shall be inspected on an individual basis. Ties with more than 1” wane within the 20” and 40” rail-bearing area, when measured from the center of the tie, will be rejected. Thickness and width tolerance shall be not more than ¼” thinner or narrower than the specified size.

E. Specifications for treatment shall conform to current AWPA Standards for treatment of ties.

2.02 GENERAL TIE REQUIREMENTS

A. All wooden ties shall be made from sound, straight, live timber, and shall be free from any defects that may impair their strength or durability, such as bark, splits, shakes, large or numerous holes or knots, pitch seams, pitch rings, slanting grain, checks, splits, or other imperfections. Decay and/or insect damage in any form is not acceptable.

B. All ties shall be well sawn on all four sides and cut square at the end to the full dimensions specified.

C. A tie is not well sawn when its surfaces are cut with score marks more than ½” deep, or when its surfaces are not even.

D. All ties shall be straight and opposite faces shall be true and parallel, and with all bark entirely removed. A tie shall be considered straight when a straight line from a point on one end to a corresponding point on the other end is no more than 2” from the surface at all points.

E. The top and bottom of a tie shall be considered parallel, if any difference in the thickness at the sides or ends does not exceed 1/8”.

F. For proper seating of nail plates, tie ends must be flat and will be considered square with a sloped end of up to ½”, which equals a 1 in 20 cant.

G. All ties will be marked with saw kerfs mark on the sap side, line end of the tie, not to exceed ¼” in depth and ¼” in width. The kerf mark will indicate heart side down when tie is installed.

H. If no end plate is installed, the tie will be stamped or branded “MTS” and the manufacturer followed by the year of manufacture on the sap side on the end of tie. The stamp or brand will be applied in such a way that the lettering and date are right side up when the tie is properly installed.

2.03 ANTI-SPLITTING DEVICES

A. Anti-splitting devices (end plates) shall be multi-nail plates as specified in AREMA Manual, Volume 1, Chapter 30, Part 3.1.6, Specifications for Devices to Control the Splitting of Wood Ties.

B. Anti-splitting devices (end plates) shall be of structural type Grade “C”, 18 gauge galvanized steel, G60 coating, ASTM-A 653 standard or better, with yield strength of at least 40,000 PSI, with 4-5 teeth per square inch, applied to cover the greatest area prone to splitting. This application shall enable the plate to hold both vertical and horizontal splits. End plates shall be applied by a mechanical device capable of squeezing any splits bringing the tie back to its original (cross section) dimensions prior to application. End plates for 7”x9” ties are to measure 6”x7” or 6 ¼”x7”. No part of the end plate is to be within ¼” of any side. All anti-split end plates shall have rounded corners and a smooth perimeter.

C. Embossed on all end plates shall be “MTS” and manufacturer followed by the year of manufacture. End plates shall be installed with the letters “MTS” upright with the tie oriented with heartwood down.

2.04 DIMENSIONS

A. All crossties shall have a 7” x 9” cross-section and shall be double end trimmed.

B. Length of ties shall be as ordered in each shipping release.

C. The length, thickness, and width specified are the minimum allowable. Ties over 1” longer, thicker or wider shall be rejected. Tie dimensions shall not be averaged.

2.05 PRESERVATIVE

A. The preservative shall consist of a mixture of 50 percent by volume of P-1 creosote oil conforming to AWPA Specifications (AWPA P3-14 and AWPA P4-11 or latest revision), and 50 percent by volume of an approved petroleum residuum oil. The creosote and oil shall be thoroughly mixed in the working tank until the mixture is of uniform composition. (Note: use of treatment with P-2, 7 lb/cu ft is an approved equal).

B. The residuum oil shall be approved asphalt base petroleum residuum oil. It shall be free from water and any foreign substance that might interfere with its penetrating qualities. The flash point of the residuum oil shall not be less than 210°F as determined in the Cleveland Open Cup. The viscosity of the residuum oil shall be such that a blend of 50 percent residuum oil and 50 percent creosote shall have a viscosity exceeding 50 seconds Saybolt Universal 180°F. BS&W shall not exceed 1 percent and the creosote oil mixture shall show no sludge formation upon standing. (Note: AWPA P4 is acceptable as an approved equal for residuum oil).

2.06 APPROVALS AND REJECTIONS

A. Ties with any type of decay will be rejected.

B. Rejection of ties for holes and knots. All such holes and knots as defined shall be allowed if they occur outside the sections of the tie between 20” and 40” from its middle.

1. A “large hole” is any hole more than 1/2” in diameter and 3” in depth within the rail bearing area, or more than 1” in diameter and 3” deep outside the sections of the tie between the 20” and 40” rail bearing area measured from the center of the tie.

2. “Numerous holes” are any number of holes equaling a large hole in damaging effect. Such holes whether caused in manufacture or otherwise, shall be cause for rejection.

3. A “large knot” within the rail bearing area is one whose average diameter is more than 1/3 the width of the surface on which it appears. “Numerous knots” are any number, which, in total, equal a large knot in damaging effect. A cluster of knots will be judged as if it were a large knot in damaging effect.

C. Ties with shake wide and/or more than 1/3 the width of the tie, and nearer than 1” to any surface, will be rejected. Fire scar shall be considered as shake.

D. Except in woods with interlocking grain, ties with a slant grain in excess of 1 in 15 will be rejected.

E. Ties with continuous checks whose depth in a fully seasoned and/or treated tie is greater than 1/4the tie thickness and longer than 1/2 the length of tie shall be rejected. Do not count the end as a surface.

F. Only those imperfections that are within the limits of current AREMA and RTA specifications shall be allowed.

G. End plates applied at the treating plant shall be used to control splitting.

H. A split is a separation of the wood extending from one surface to an opposite or adjacent surface. A split 1/8” wide and 4” long in an unseasoned crosstie is acceptable. A split more than 1/4” wide and/or 9” long on the face on which it occurs in a seasoned crosstie shall be rejected. Stump pull shall be graded the same as a split in the end of a tie. A stump pull that goes into the interior of the tie more than 5” shall be rejected.

I. Bark seam or pocket is a patch of bark partially or wholly enclosed in the wood. Bark seams shall be allowed outside the rail bearing area provided they are not more than 2” below the surface, 1/4” wide, and not more than 5” long.

J. Ties with heart-checks that go into the tie plate area shall be rejected if the check is more than a cumulative 1/2” wide or if the check causes the plate area to be concave/convex.

PART 3 - EXECUTION

3.01 PLANT EQUIPMENT

A. Treating plant shall be equipped with the thermometers and gauges necessary to indicate and record accurately the condition of all stages of treatment equipment shall be maintained in acceptable, proper working condition.

B. Notice: All green gross ties shall be checked periodically for moisture content prior to going in the cylinder. Twenty (20) borings per charge shall be taken from crossties so that the moisture content level can be measured to determine the amount of water that is to be removed from the crossties.

C. Material shall be conditioned by air seasoning or boultonizing.

D. All material, either under vacuum or at atmospheric pressure, shall be handled in such a manner that will not cause injuries, checking splitting, warping, or render it unfit for the service intended.

3.02 AIR SEASONING

A. When air seasoning is used, material shall be treated before it begins to deteriorate. Air seasoned material shall also be given a preliminary heating in the preservative for not more than three (3) hours at a temperature of not more than 210°F, just before the regular treating operation.

1. All Oak/Hickory ties shall be seasoned for approximately 10 months to obtain moisture content not to exceed 45%.

2. Mixed Hardwood ties shall be seasoned for approximately five months to obtain a moisture contents not to exceed 40%.

3.03 BOULTONIZING

A. When boultonizing, the oil shall cover the material in the cylinder. The temperature of the oil during the conditioning period shall not exceed 210°F. When a vacuum is then drawn, it shall be of sufficient intensity to evaporate water from the material at the temperature of the oil. The intensity of the vacuum or the temperature of the oil, or both, shall be adjusted so as to regulate the evaporation of the water satisfactorily. The conditioning shall continue until the material is sufficiently heated and enough water removed from the cylinder before an empty-cell process is applied for pressure treatment. The Boulton process used is to conform to AWPA section C1-00 Section 1.3.3, most recent version. Maximum moisture content is to be 50 percent for oak-hickory and 40 percent in mixed Hardwoods before press cycle begins.

3.04 MANNER OF TREATMENT

A. Following the conditioning period, material shall be treated by an empty-cell process whenever practicable, to obtain as deep and uniform penetration as possible with the retention of preservative stipulated. Material shall be treated by the full-cell process only when the maximum net retention is desired and where pressure is held to refusal, or when the stipulated retention is greater than can be obtained by the use of an empty-cell process. The range of pressure, temperature, and time duration shall be controlled so as to get the maximum penetration by the quantity of preservative injected.

3.05 EMPTY CELL PROCESS (LOWRY AND RUEPING)

A. Treatment shall be by the empty cell method with a creosote/coal tar solution or creosote/petroleum (50 percent - 50 percent) solution in accordance with AWPA Standard P-2, P-3, and P-4. The preservative solution shall be tested monthly according to AWPA Standard A-1. In no case shall treatment be less than that required for AWPA U1, UC4B.

B. Material shall be subjected to atmospheric air pressure or to higher initial air pressure of the necessary intensity and duration. The preservative shall be introduced until the cylinder is filled while the air pressure is being maintained during the filling operation.

C. The pressure shall be raised to not more than 250-pounds per square inch. Material shall be held under pressure until there is obtained the largest quick high vacuum.

D. The temperature of the preservative during the entire pressure period shall not be more than 210°F but shall average at least 180°F.

E. After pressurizing is completed, the cylinder shall be emptied speedily of preservative and a vacuum of not less than 22-inches at sea level created promptly and maintained until the wood can be removed from the cylinder free of dripping preservative, or;

1. After pressurizing is completed, and before removal of preservative from tie cylinder, the preservative surrounding the material may be preheated to a maximum of 215°F, either at an atmospheric pressure or under vacuum; the steam to be turned off the heating coils and the leader lines opened immediately after the minimum temperature is reached. The cylinder shall then be emptied speedily of preservative and a vacuum of not less than 22-inches at sea level created promptly and maintained until the wood can be removed from the cylinder free of dripping preservative.

F. At the completion of treatment, material may be cleaned by final steaming, when authorized, at not more than 240°F for not more than 30-minutes.

3.06 RESULTS OF TREATMENT RETENTION

A. No charge shall contain less than 75-percent nor more than 110-percent of the quantity of preservative specified for the class of material, except when the character of the wood in any charge makes these requirements impracticable despite treatment to refusal. The amount of preservative retained shall be calculated from readings of working tank gauges or scales or weights before and after treatment of loaded trams on suitable track scales with the necessary corrections for changes in moisture content.

B. The column of oil preservatives shall be calculated on the basis of 100°F. Calculations of volume or weight shall be made by the use of temperature of specific gravity factor contained in the Volume of Specific Gravity Correction Tables of the AWPA.

3.07 PENETRATION

A. Penetration of ties shall not be less than the following for at least 80% of the pieces bored in each charge.

Thickness (Inches)	Depth (Inches)	Percent of Sapwood
5 and over	1/2	90%

B. Penetration of ties shall be determined by boring not less than two (2) ties in each tram in each charge.

C. Penetration of timber and ties shall be determined by boring approximately midway between ends. Only material meeting the penetration requirements shall be accepted.

D. Any charge not conforming to stipulated minimum requirements shall be retreated and re-offered for acceptance.

E. Any holes, which may be bored, shall be filled with tight fitting treated plugs.

F. Process and preservative to be used on material and retention required shall be as follows, unless otherwise specified, for all ties, bridge timbers and lumber.

	50% Creosote 50% Oil	Process
Western Species		
Hardwood	7-1/2 lb. or Ref.	L&R
Oak	7-1/2 lb. or Ref.	Bethel or L&R

G. Retention shall be determined by gauge. The amount of preservative solution retained shall be determined from readings of working tank gauges or scales made before and after treatment. The retention of preservative shall be calculated after correcting the volume of preservative solution to 100°F.

3.08 CARE OF TREATED WOOD

A. In handling treated material, extreme care shall be used to avoid damage to the edges of the timbers and to avoid breaking-through the portions penetrated by the treatment and exposing untreated wood.

B. The use of peaveys, timber dogs, picaroons, log hooks, or other pointed tools shall be such as not to break through the treated portion of treated timber.

3.09 PLANT STORAGE

A. The storage yard for seasoning shall be in the open where the air current will circulate freely, shall not be in a low humid situation if it can be avoided, have good drainage, and be kept free from vegetation and debris, especially from scrap wood already infected with decay.

B. No material shall be piled on bearings spanning low spots or drainage ditches in which there is standing or running water.

C. Material shall be so piled that most efficient results will occur but shall not be piled within one hundred feet of any building.

D. Storage piles shall be placed not less than 2 feet apart with 12-foot fire alleys provided across the yard opposite each fire hydrant or at a maximum spacing of 40 feet. Firebreaks 100 feet in width extending entirely across the yard shall be provided every 100 feet or less.

E. Treated materials shall be stored in a similar manner to untreated but must not be piled in same area with untreated materials.

F. Unseasoned material shall be stacked separately from seasoned or partly seasoned material.

G. Material shall be stored in groups according to species and types. Species and types of wood and date received at yard shall be marked on each stack.

3.010 STACKING

A. Sawn ties shall be stacked either 1”x9” or 2”x9” standard stacking method.

B. Alternate: If necessary to retard evaporation of moisture from the ties, ties may be stacked parallel on edge using crossties as separators.

3.011 GROUPING

A. In assembling material for treatment, whenever it is practicable, the material in any charge shall consist of pieces similar in size, moisture content, and receptivity to treatment and be separated so as to insure contact of heating medium with all surfaces.

3.012 BARKING

A. In case of piling or ties being received that have not been thoroughly cleaned of all bark and inner skin, such bark shall be removed before treatment.

3.013 DELIVERY

A. Ties shall be delivered to location(s) indicated on the Plans, in these Specifications, or as directed by the Engineer.

3.014 ONSITE STORAGE

A. Treated ties stored on the site are the responsibility of the Contractor. Ties shall be stored to avoid:

1. Theft and vandalism
2. Damage by construction and MTS operations.
3. Contamination of water and/or soil by the ties.

B. Long-term tie storage shall not be located within 250-feet of an open road crossing or residences or environmentally sensitive area.

C. Ties shall not be stored in a manner that obscures motorist's vision at public, private, or temporary road crossings.

D. Ties temporarily located within 250-feet of a public road crossing or residences shall be covered by an impervious sheet material to control odor and vapor.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement will be made for furnishing and/or installing timber ties.

4.02 PAYMENT

A. Full compensation for timber track cross ties shall be considered as included in the contract price paid for various other items within "Civil and Track" on the Bid Price Form therefore no separate payment will be made.

SECTION 34 11 40
PRECAST CONCRETE GRADE CROSSING PANELS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies the material requirements and performance criteria for the Precast Concrete Grade Crossing Panels to be furnished in accordance with Contract Plans or as required by the Engineer.

1.02 REFERENCES

A. American Railway Engineering and Maintenance of Way Association (AREMA)

1. Manual for Railway Engineering

2. Specifications for Special Trackwork

B. American Welding Society (AWS)

1. AWS B2.1: Standards for Welding Procedures and Performance Qualifications

2. AWS D1.1: Structural Welding Code

C. American Society for Testing of Materials (ASTM)

1. A36: Standard Specifications for Carbon Structural Steel

2. A123: Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products

3. A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

4. C666: Standard test Method for Resistance of Concrete to Rapid Freezing and Thawing

5. C1260: Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

6. D257: Standard Test Methods for DC Resistance of Conductance of Insulating Materials

7. D395: Standard Test Methods for Rubber Property/Compression Test

8. D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers Tension

9. D573: Standard Test Methods for Rubber Deterioration in an Air Oven

10. D624: Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

11. D2137: Standard test Methods for Rubber Property- Brittleness Points of Flexible Polymers and Coated Fabrics

12. D2240: Standard Test Methods for Rubber Property-Durometer Hardness

13. D2628: Standard Specifications for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements

D. Association of American Railroads (AAR)

1. M-1003: Manual, Specifications for Quality Assurance

E. International Organization for Standardization (ISO)

1. 9000: An International Consensus on Good Quality Management Practices

F. Prestressed Concrete Institute (PCI)

1. MNL115: Fundamental of Prestressed Concrete Design

2. MNL123: Design and Typical Details of Connection for Precast and Prestressed Concrete

3. MNL138: PCI Connections Manual for Precast and Prestressed Concrete Construction

G. LOSSAN: Engineering Standards, ESD-4201

1.03 DEFINITIONS

A. Field Side – End of tie plate designed to be located on the opposite side of the rail from the centerline of track.

B. Gage Side – End of tie plate designed to be located closest to the centerline of track.

C. OTM – A general term referring to all miscellaneous materials other than rail and ties.

D. Shunt – A connection between two points in an electric circuit that forms an alternative path for a portion of the current.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. The Contractor shall submit supporting information within 60 calendar days of award documenting the past successful performance in furnishing the materials included in the Schedule of Quantities and Prices. Provide references and contact numbers at the railroads where the precast concrete grade crossing panels have been placed in service.

C. The Contractor shall submit certificate of compliance that the material delivered is in compliance with the specification within 60 calendar days of approval of payment.

D. The Contractor shall submit for review and approval quality control and quality assurance plans and related certifications such as ISO 9001, “six sigma” or equivalent demonstrating that the Contractor has the processes, personnel, and systems to produce high quality precast concrete grade crossing panels included in the Schedule of Quantities and Prices.

E. The Contractor shall submit data documenting past performance and projects within the last ten (10) years furnishing precast concrete grade crossing panels material to Class 1 Freight, passenger or commuter railroads.

F. The Contractor shall include installation instructions.

G. Submit Certificates of Compliance for all precast concrete grade crossing panels. Include material qualification test reports for materials, components, and assemblies.

H. Administrative and procedural requirements for proposed changes in product and materials from those required by these specifications shall be as per Article 3.12, Request for Substitution, of the General Conditions.

1.05 QUALITY ASSURANCE

A. Contractor’s Quality Control Program (QCP) shall be in accordance with the AAR M-1003 or MTS approved equivalent quality control program.

B. Materials or partially or fully assembled products not meeting the specifications shall be rejected.

C. Equipment used for the manufacturing materials shall be in good operating condition, of adequate capacity and range, and accurately calibrated. Testing equipment shall be certified and traceable to national standards such as the National Institute of Standards and Technology.

1.06 DELIVERY, STORAGE AND HANDLIONG

A. The Contractor shall load, transport, and handle the material in a manner which will prevent damage to the material.

B. A complete Bill of Material for each order will be submitted with modes, dates, contents, and destinations of shipments clearly indicated. A complete shipping list shall accompany all deliveries of materials.

1.07 WARRANTY

A. The Contractor shall warranty the precast concrete grade crossing panels for a minimum ten years against defects in materials and workmanship.

PART 2 - PRODUCTS

2.01 GENERAL

A. Precast concrete grade crossing panels shall be new and conform to LOSSAN Engineering Standard ESD-4201.

B. Precast concrete grade crossing panels ordered to the Engineering Standards shall be produced in conformance to these specifications.

2.02 CONCRETE PANELS

A. Precast concrete grade crossing panels shall be lag-down heavy-duty panels.

B. Precast concrete grade crossing panels shall be designed for use on 10 feet wood track ties and ballast track.

C. Precast concrete grade crossing panels shall have flangeways 2½” in width and be electrically isolated to prevent shunt currents.

D. Precast concrete grade crossing panels shall be sized such that when installed, the top of the panels is at the top of rail elevation.

F. Panels shall be of the type which fastens to the timber ties utilizing a lagging screw system which fastens from the top down. The lagging screws shall be mechanically galvanized with zinc coating in a room temperature process, without electricity and without heat.

G. Rubber flangeway filler shall be designed to match the precast concrete crossing panels and rail fastening system.

H. Grade crossing surface systems, including any flangeway (gage and field side) filler material components, must be electrically non-conductive so as not to interfere with train control or crossing signals.

I. Each gage panel shall incorporate a 3” UHMW shunt break to assure electrical isolation. End angle for gage panels shall have 3” minimum gap to improveshunt resistance.

J. Concrete Crossing Panels shall be by Omega Industries or approved equal for use on MTS.

2.03 CONCRETE

A. Concrete compressive strength shall be minimum 6000 psi. The compressive strength shall be 2500 psi before panel is removed from forms and 5,000 psi at 21 days.

B. Minimum cement content shall be seven sacks per cubic yards.

C. Maximum water/cement ration shall be 0.44. Slump shall not exceed three inches.

D. Concrete sealant shall be used to prevent cracks and ion migration. Sealant shall be applied to fresh concrete as an aid in curing, hardening, water proofing, acid proofing and oil proofing each panel.

2.04 STRUCTURAL STEEL

A. Reinforcing steel shall be grade 60.

B. Steel angles shall be ASTM grade 36. The exposed steel shall receive one primer coat.

2.05 RUBBER FLANGEWAY FILLER

A. Rubber flangeway filler shall be permanently attached to the concrete panels.

B. Rubber flangeway filler shall meet the following:

1. Tensile strength – 850 psi
2. Ultimate elongation – 400% minimum
3. Tear strength at 25 degree Celsius – 150 pli minimum
4. Hardness – 75
5. Compression set 100 degrees Celsius for 70 hours
6. Accelerated aging test – 70 hours
7. Ozone resistance test – 5- PPHM for 96 hours
8. Electric resistance – 10 mega ohms minimum

C. The pre-attached flangeway filler shall allow for the removal of panels for maintenance without damaging the flangeway filler or any other components designed to hold the panel together.

2.06 FINISHES

A. All recess and minor concrete spalls are to be filled and finished to the panel dimensions using the proper bonding agent and repair material. Surface of the repaired area is to match the color and texture of the surrounding area.

B. The driving surface is to have a light broom finish or as approved by MTS. The addition of water to the concrete surface finish during casting is not permitted.

2.07 MARKING

A. Each precast concrete grade crossing panel shall be marked with concrete imprint for size of rail, weight of panel, Manufacturer's ID, month/day/year of manufacture and crossing type. End of each panel will be stenciled painted with size of rail, weight of panel and crossing type.

2.08 SOURCE QUALITY CONTROL

A. During precast concrete grade crossing panel fabrication, perform the tests and inspections specified in these Specifications.

B. Contractor shall submit (via an independent testing laboratory to MTS), the freeze/thaw, mortar bar method and total alkali burden (0.06%) tests on the mix design.

C. A representative sample of panels shall be checked for bottom flatness.

PART 3 – EXECUTION

3.01 GENERAL

A. Promptly notify MTS of any conflicts, omissions or needed clarifications arising from the use of the designated drawings, standards, or specifications.

3.02 SCHEDULE

A. The Contractor shall coordinate delivery of the materials with MTS 7 calendar days prior to the date of delivery.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Concrete Crossing Panels will be measured by the unit or fraction thereof constructed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Bid Price Form, or approved

Schedule of Values as derived from the plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Concrete Crossing Panels furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

SECTION 34 11 93

TRACK APPURTENANCES AND ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. This work shall consist of furnishing and installing geotextile fabric and other miscellaneous work as required by the Contract Documents.

1. The geotextile fabric shall consist of furnishing and installing geotextile fabric on the subgrade, beneath the ballast, for the purpose of stabilizing the trackway as defined by AREMA. The geotextile fabric shall be installed as shown on the Plans and in accordance with the manufacturer's recommendations and these technical specifications.

1.02 REFERENCES

A. AREMA Manual for Railway Engineering

B. AREMA Portfolio of Trackwork Plans

C. American International (ASTM) Standards

1.	ASTM D1777	Standard Test Method for Thickness of Textile Materials
2.	ASTM D3786	Standard Test Method for Bursting Strength of Textile Fabrics
3.	ASTM D4218	Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
4.	ASTM D4491-99a	Water Permeability of Geotextiles by Permittivity
5.	ASTM D4533	Standard Test Method for Trapezoid Tearing Strength of Geotextiles
6.	ASTM D4632-91	Grab Breaking Load and Elongation of Geotextiles
7.	ASTM D4716	Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic using a Constant Head
8.	ASTM D4751	Standard Test Method for Determining Apparent Opening Size of a Geotextile
9.	ASTM D4759	Standard Practice for Determining the Specification Conformance of Geosynthetics
10.	ASTM D4833-00	Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
11.	ASTM D4886	Standard Test Method for Abrasion Resistance of Geotextiles

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements, and shall include the following.

1. Product data

   a. Submit manufacturer's catalog data and certification of compliance on geotextile fabric.

2. Test Results

   a. Geotextile fabric test results

   b. Triaxial geogrid test results

PART 2 - PRODUCTS

2.01 GEOTEXTILE FABRIC

A. The geotextile fabric shall conform to the provisions in Chapter 1, Part 10, "Geosynthetics," of the AREMA Manual and these technical specifications. Geotextile fabric weighing 16 ounces per square yard (extra heavy) shall be non-woven, manufactured from polyester, polypropylene, or polypropylene-nylon material. The following tests shall be qualification tests made on two samples of filter fabric. The Engineer will choose the samples and the proposed test shall be conducted by an independent laboratory approved by the Engineer. Results of the test shall be submitted to the Engineer for approval. All testing shall be at no additional cost to MTS. Ballast or HMA shall not be placed on geotextile fabric until the Engineer has given written approval to the test results.

Grab Tensile Strength, ASTM D 4632-91	350 lbs. minimum
Elongation, ASTM D 4632-91	20% minimum
Permittivity, ASTM D 4491-99a	0.20 1/sec.
Puncture Strength, ASTM 4833-00	185 lbs. minimum

PART 3 - EXECUTION

3.01 GEOTEXTILE FABRIC

A. Handling

1. Handling, storage and installation, including overlapping, shall conform to the recommendations of the manufacturer. All sheeting damaged during installation or weakened by exposure to sunlight shall be replaced prior to placement of ballast or HMA.

B. Placement

1. Geotextile fabric shall be placed in accordance with manufacturer's recommendations, and AREMA Chapter 1, Section 10, Part 1.5, "Construction Details and Methods." Specifically, Geotextile Fabric shall be placed with an overlap of 2 feet in both the longitudinal and transverse directions.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Geotextile Fabric

1. No separate measurement will be made for furnishing and installing Geotextile fabric.

4.02 PAYMENT

A. Geotextile Fabric

B. Full compensation for Geotextile Fabric shall be considered as included in the contract price paid for various other items within “Civil and Track” on the Bid Price Form therefore no separate payment will be made.

END OF SECTION

SECTION 34 23 33
OCS FOUNDATIONS AND DOWN GUY ANCHOR FOUNDATIONS

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. This Section includes requirements for constructing cast-in-place concrete foundations for Overhead Contact System (OCS) poles and guy anchors.

B. Section Includes:

1. Surveying and field layouts
2. Foundations excavation
3. Steel reinforcement, anchoring, and grounding devices within the foundations
4. Cast-in-place concrete OCS pole and guy anchor foundations

C. Related Sections:

1. Section 01 00 00 –General Requirements
2. Section 34 23 46 – Grounding and Bonding of OCS Assemblies

1.02 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO M314 – Standard Specification for Steel Anchor Bolts

B. American Concrete Institute (ACI):

1. ACI 117 – Specification for Tolerances for Concrete Construction and Materials
2. ACI 305R – Guide to Hot Weather Concreting
3. ACI 306R – Guide to Cold Weather Concreting

C. ASTM International (ASTM):

1. ASTM A36 – Standard Specification for Carbon Structural Steel
2. ASTM A153 – Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware
3. ASTM A563 – Standard Specification for Carbon and Alloy Steel Nuts
4. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
5. ASTM F436 – Standard Specification for Hardened Steel Washers Inch and Metric Dimensions
6. ASTM F1554 – Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

D. American Welding Society (AWS):

1. AWS D1.1 – Structural Welding Code, Steel

E. California Department of Transportation (Caltrans)

1. Section 51 - Forms
2. Section 52 – Reinforcement
3. Section 86-2.01C(5) – Excavating and Backfilling for Electrical Systems

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following:

1. Product Data
2. Certificates and Test Reports
3. Construction work plan for drilling and placing the foundations

C. A tabulated list of information shall be submitted for each installed OCS pole and down guy anchor foundation. As a minimum, the following As-Built data shall be provided for each foundation location:

1. Each installed foundation shall be identified by its structure stationing location number and referenced to which adjacent LRT track it serves.
2. The final installed offset from centerline of foundation to centerline of track served.
3. The final installed distance from top of foundation to low rail level of track served.
4. Type of foundation using Contract Plan sheet references, and including final installed depth. Note any dimensional changes and/or site-specific particulars relevant to its excavation and concrete installation.
5. Date of final hole inspection and concrete pour.
6. Delivery ticket number for concrete transport used.
7. Field test log for all OCS foundation electrical resistance tests, showing actual field data measurements, with results recorded in ohms for each foundation with location stationing. Include a list of both the initial ground resistance test value and all subsequent retest values measured. Test logs shall also show, as a minimum, the field-test date, number of ground rods installed, and notes on any problems encountered.

1.04 SPARE PARTS

A. List spare nuts and washers of each type and size provided for use with the anchor bolts on the spare parts list.

B. Quantity: The total quantity of nuts and washers shall consist of not less than 2 percent spares for all fastener sizes utilized for the anchor bolt arrangements.

C. Furnish and deliver the spare nuts and washers in separate containers by type to the location designated by the Engineer.

1.05 QUALITY ASSURANCE

A. Provide the following items:

1. Material qualification testing. Mill certification for acceptance.

2. Continuous and verified field inspection.

B. Perform all welding required under this Section in accordance with the requirements of AWS D1.1.

C. Use electricians licensed by the State of California to install ground rods and other electrical material.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver Materials to the Work Site in undamaged condition and store the materials off the ground in a well-drained location, protected from damage, and easily accessible for inspection and handling.

1.07 FIELD CONDITIONS

A. When placing concrete, comply with ACI 305R during hot weather conditions and ACI 306R during cold weather conditions.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Anchor Bolts, Rods, and Hardware:

1. Anchor Bolts and Rods:

a. For catenary pole foundations, provide anchor bolts and rods conforming to AASHTO M314, Grade 55 or ASTM F1554, Grade 55.

2. Anchor Bolt Nuts: Provide nuts conforming to ASTM A563, Grade C heavy hex nuts.

3. Washers:

a. For catenary pole foundations, provide hardened steel washers conforming to ASTM F436.

4. Down Guy Anchors: ASTM A615, Grade 60.

5. Galvanizing: Provide galvanizing for anchor bolts, rods, nuts, and washers conforming to ASTM A153.

B. Temporary Casing Shell:

1. Provide a temporary steel casing shell having an outside diameter equal to or greater than the specified diameter of each foundation’s drilled shaft, and having sufficient strength to withstand handling stresses, concrete pressure, and

surrounding earth and fluid pressures as necessary or when required by the Engineer.

2. Casing Shells must be approved by the Engineer prior to use.

C. Concrete:

1. Provide concrete in accordance with Section 86-2.01C(5), “Excavating and Backfilling for Electrical Systems” of the Caltrans Standard Specifications, except as it may be modified herein.

2. Provide concrete as shown on the Contract Plans, capable of obtaining the minimum compressive strength at 28 days.

D. Concrete Formwork:

1. Provide concrete formwork in accordance with Section 51-1.03C(2), “Forms” of the Caltrans Standard Specifications and as specified herein.

2. For concrete formwork used to construct foundations above finish grade, provide forms of sufficient strength to withstand the pressure of concrete, and which provide a smooth concrete surface finish.

E. Concrete Reinforcement:

1. Provide concrete reinforcement in accordance with Section 52, “Reinforcement” of the Caltrans Standard Specifications and as specified herein.

2. Provide deformed bar reinforcement that conforms to the requirements of ASTM A615, grade 60, and that is fabricated as shown on the Contract Plans.

F. Grounding Conductors, Grounding Rods, and Exothermic Weld Connections: Provide grounding conductors, grounding rods, and exothermic weld connections in accordance with the requirements of Section 34 23 46, Grounding and Bonding of OCS Assemblies.

G. Ground Wells with Covers: Provide polymer concrete ground wells and covers as manufactured by Strongwell (Quazite) or approved equal.

PART 3 – EXECUTION

3.01 EXCAVATION

A. Prior to drilling foundation shafts, perform the excavation for conduits and risers.

B. Drill the foundation shafts at the locations and to the dimensions and embedment depths as shown on the Contract Plans, keeping the shafts within the specified tolerances.

1. Blasting as a method of foundation excavation is not permitted for use on OCS pole foundations and down guy anchor foundations.

2. In the event that the bottom of the foundation excavation is on sloped rock, excavate the rock to a level plain.

3. The total foundation length equals the embedment depth, below the finished subgrade plus the projection, as shown on the Contract Plans.

C. Remove abandoned pipe, concrete, boulders, and other obstructions which extend into the foundation shafts and prevent the proper formation of the foundations. If the foundation shaft

excavation is interfered with by permanent utility lines and piping, notify the Engineer immediately for direction. To avoid local obstructions, the along-track positions of pier foundations as shown on the Contract Plans, may be modified by up to plus or minus 5 feet. Adjacent to special trackwork, the along-track positions of the OCS pole pier foundations may be modified only by up to plus or minus 2.5 feet. Modifications are subject to prior approval by the Engineer. Contractor shall have all existing utilities located prior to drilling. Should a utility appear to be in conflict with the foundation location shown on the Contract Plans, then the Contractor shall not proceed with drilling and request direction from the Engineer. The Contractor shall protect in-place existing utilities.

D. Where LRT subgrade fill construction or site-specific soil conditions prevent the use of an augured free standing hole, a sleeve or casing may be installed to form the foundation hole. If the sleeve is to remain in the hole permanently, it shall be installed so the soil in contact with it remains undisturbed or if backfill material is used it shall be compacted to a minimum 95% compaction dry density. The fill compaction shall surround the complete depth (circumference) of the side bearing (pier) foundation, in a radial direction for a minimum of 10 feet from the foundation center leaving no voids between the sleeve and the wall of the casing hole.

E. Contractor shall take measures to protect ballast from contamination during excavation.

F. Adequately cover the open holes and protect against possible hazards.

G. Coordinate with geotechnical engineer to use steel casing shells to control ingress of water or prevent caving in of the foundation shaft where necessary.

3.02 CONSTRUCTION

A. Concrete Reinforcement Installation:

1. Place the reinforcing cage in the foundation shaft symmetrically about the axis of the foundation, and securely brace it to maintain the minimum clearance of concrete cover as shown on the Contract Plans. Maintain the reinforcing cage in a clean condition until it is embedded in concrete.

2. Provide electrical grounding within the reinforcing cages as shown on the Contract Plans. Install all foundation grounding hardware, cable, ground rods and related electrical material including jumpers and exothermic (Cadweld) connections in accordance with manufacturer’s instructions and as shown on the Contract Plans. Each completed, formed-up arrangement shall be inspected and approved by the Engineer before concrete placement. In addition, prior to foundation concrete placement, the Contractor shall perform electrical resistance testing at each at-grade OCS pole foundation grounding arrangement.

3. The reinforcing cage shall be lowered into the augured hole in such a manner so as to not disturb the sides of the excavation and knock dirt into the hole. If substantial amounts of earth do fall into the hole during the cage placement, the rebar cage shall be removed and the excavation cleared to the satisfaction of the Engineer.

B. Anchor bolt installation:

1. Locate and orient the anchor bolt assemblies as shown on the Contract Plans and within the specified tolerances. Use prefabricated metal templates to hold the projecting portion of the anchor bolts in their proper positions.

2. Provide all anchor bolts with hexagonal nuts, leveling nuts, and standard washers as shown on the Contract Plans and specified in these specifications.

3. All OCS foundation anchor bolt arrangements shall be set centered and plumb in the hole. The foundation's anchor bolt arrangement for all OCS poles shall be set perpendicular to the actual load that is applied to the pole.

4. The anchor bolt pattern shall be set perpendicular to the pull-off, backbone, or dead end Termination Only" poles (not directly supporting and registering the along track in-running OCS) line of pull.

5. OCS poles configured as single and back-to-back cantilevers supports, and head span wire construction, the anchor bolt pattern shall be set perpendicular to the track.

6. Prior to concrete placement, the Contractor shall, without exception, utilize and install a rigid anchor bolt pattern template and support jig for each foundation type, to ensure the accurate alignment of the anchor bolt arrangement. In addition, the Contractor shall make available a set of go / no-go gauge templates, sized for each type of anchor bolt arrangement, to be used by the foundation inspector and Engineer, to verify the anchor bolt alignments and projections prior to and after concrete placement. Any anchor bolt arrangements that do not conform to these setting position requirements are considered unacceptable. The Contractor shall repair or replace any rejected anchor bolt arrangements as required by the Engineer.

7. All down guy anchor rods shall be positioned in line of pull of the guy.

C. Preparing and Pouring Concrete:

1. Remove all loose material from the bottom of the drilled foundation shafts and dewater as required prior to and during the placing of concrete.

2. Where soil conditions, ground water, or both prevent a free-standing hole, a permanent steel casing shall be installed in the hole, unless an alternative shoring method is approved by the Engineer in writing. If the casing is installed it shall remain in the hole permanently, unless otherwise authorized by the Engineer. The casing shall be installed so the soil in contact with it remains undisturbed, leaving no voids between the casing and the wall of the hole.

3. Obtain Engineer approval of the reinforcement, conduit riser and grounding conductors, and anchor bolts installation. Begin placement of the concrete immediately after approval. Protect the anchor bolts and grounding conductors from damage and prevent them from moving during placement and curing of the concrete.

4. Place concrete in one continuous operation for each foundation shaft.

   a. Place concrete so as to not allow concrete to segregate.

b. To prevent segregation of the concrete, deposit the concrete as close as possible to its final position in the foundation. The concrete shall be deposited using hopper and “elephant trunk” to ensure that the concrete does not free fall more than 5 feet. During placement, the concrete shall be vibrated throughout the entire foundation depth, with particular emphasis on vibrating the concrete surrounding the anchor bolts and rods.

5. Where site conditions make it possible for alternative shoring methods (such as a temporary removable steel casing shell or Tremie Tube method), acceptable to the Engineer, to be used, the Contractor shall extract the alternative shoring system as the concrete is placed in the bottom of the hole.

6. If a temporary removable steel casing system is used, then the contractor shall maintain an adequate head of concrete above the bottom of the casing to resist the soil and water pressures.

7. 48 hours after the concrete has been placed, the anchor bolt template may be removed from the top of the foundation and reused elsewhere.

8. Concrete Finish:

a. Steel trowel all exposed, rough concrete surfaces to produce a smooth, dense surface.

b. Finish the top of the foundation with a chamfered edge and a 1 percent slope, sloping away from the center of the foundation, unless otherwise shown on the Contract Plans.

D. Grounding Provisions:

1. Refer to the OCS layout schedule shown on the Contract Plans for the locations of feeder poles, poles with pole-mounted disconnect switches, and poles with surge arresters.

2. OCS Catenary Pole Grounding: Provide a grounding system for each OCS catenary pole foundation consisting of ground conductors, exothermic weld connections, ground rod(s), and appurtenances as shown on the Contract Plans and in accordance with these Specifications.

a. Install and connect additional grounding rods at not less than 10 feet spacing until the specified grounding requirements are met.

b. In the event that the grounding system resistance exceeds the maximum allowable after three ground rods are installed, notify the Engineer for further direction before installing additional ground rods.

3. Pole-mounted Surge Arrester Grounding:

a. For each pole-mounted surge arrester, provide a separate grounding system consisting of ground wells with covers, conduit, ground conductors, ground rod(s), and exothermic weld connections, and appurtenances as shown on the Contract Plans and in accordance with these Specifications.

1) Provide ground rods in the ground wells as shown on the Contract Plans.

2) Install and connect additional grounding rods at not less than 10 feet spacing, until the specified grounding requirements are met. Longer ground rods in 10-foot incremental lengths spaced apart not less than the length of the longer ground rod will be accepted.

b. If the pole-mounted surge arrester grounding system is installed along ballasted track, do not backfill and apply ballast until after the grounding system test results have been accepted by the Engineer.

c. A ground wire shall extend from the grounding system and connect directly to the pole-mounted surge arrester.

4. Grounding provisions are not required for down guy anchor foundations.

E. Tolerances: Tolerances shall be as follows unless otherwise shown on the Contract Plans or specified in these specifications:

1. Unless otherwise specified, construct all concrete foundations in accordance with the tolerances specified in ACI 117.

2. The axis of each pier foundation shaft may not be out of plumb by more than 1 percent of the shaft length. Construction axis tolerance at the top of the foundation shall be no more than 3/4 inch, except where otherwise provided for herein.

3. Do not allow any foundation to be less than the designed diameter and length shown on the Contract Plans. If it is greater in size, do not allow the foundation to interfere with utilities or other work.

4. Locate each anchor bolt and down-guy anchor rod within 1/8 inch of its correct horizontal position and 0.5 degree of true vertical in its anchor bolt assembly and down-guy anchor rod, as shown on the Contract Plans. Locate each down-guy anchor rod within 0.5 degree of the designed orientation.

5. Locate conduit riser within 1 inch of its correct offset dimension and vertical position as shown on the Contract Plans. Determine the conduit riser positions relative to the offset dimensions from the vertical and horizontal base lines, or track centerline.

6. Locate each anchor bolt assembly within 2 degrees of its correct orientation.

7. Construct the top of concrete of each foundation to be within 1 inch of its correct elevation in unpaved areas and flush in paved areas.

3.03 FIELD QUALITY CONTROL

A. Notify the Engineer that the installation is ready for inspection after installation of the concrete reinforcement, conduit risers, grounding connections and anchor bolt assembly for each foundation. Correct, replace, or repair all out of tolerance foundations to the satisfaction of the Engineer.

B. Test the OCS catenary pole foundation grounding system resistance to ground. The acceptable resistance of the pole grounding system is 10 ohms or less, except where otherwise directed by the Engineer on a site specific basis.

C. Test the pole foundation grounding system resistance to ground of the pole with pole mounted disconnect switch. The acceptable resistance at the ground plate is 5 ohms or less.

D. Test the pole-mounted surge arrester grounding system resistance to ground. The acceptable resistance at the ground rod in the ground well is 5 ohms or less.

E. Refer to Article1.03, Submittals, for requirement to submit Certificates and Test Reports documenting the testing performed.

F. Any pole, anchor bolt or down guy anchor foundation constructed by the Contractor, not conforming to the Contract Plans and specified requirements, shall be demolished and relocated at Contractor's expense.

3.04 ADJUSTING

A. Adjust the concrete reinforcement and anchor bolts as required by the Engineer.

3.05 CLEANING

A. Remove all excavated drilling materials that are surplus or are not reusable and properly dispose of them.

B. At the conclusion of the foundation work, remove equipment used in the work, and remove all debris, surplus material, and excavated soil from the premises.

3.06 PROTECTION

A. Cover open foundation shafts and incomplete construction to prevent hazards.

B. Protect projecting and exposed surfaces from damage during the entire construction period.

C. Cover exposed threaded section of anchor bolts with a sleeve, until pole is set, to protect threads from damage.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Catenary Pole Foundation and Down Guy foundation shall be measured for payment by each.

4.02 PAYMENT

A. The contract unit price paid for Catenary Pole Foundation and Down Guy foundation shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing Catenary Pole Foundation and Down Guy foundation complete in place, including grounding and testing as specified in these Specifications, the Plans, and as directed by the Engineer.

END OF SECTION

SECTION 34 23 36
OCS STEEL STRUCTURES, METAL FABRICATIONS, AND MISCELLANEOUS METAL

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section specifies the requirements for furnishing, fabricating, and erecting structural steel for OCS wall/ceiling or overhead structure attachments as shown on the Contract Plans. This Section also includes specifications for metal fabrications and miscellaneous metalwork as shown on the Contract Plans.

B. Section Includes:

1. OCS attachments required to secure the overhead contact system.

2. Fabricated items specified herein consist of steel and iron shapes, plates, bars, pipes, tubes, casting, and roll-formed shapes.

3. OCS attachments shall be fabricated as complete units, and hot-dip or electrogalvanized after fabrication in order to avoid the need for field painting.

4. Metal fabrications and miscellaneous items and related components include: brackets and supports for signs, frames, pipe and conduit sleeves; steel angles and other armor for protection of concrete edges, corners, and sills; bearing devices and masonry plates; racks for mounting outdoor switchgear and conduit; miscellaneous steel clips, angles, and brackets; and, anchors, fasteners.

5. Metal fabricated units shall be hot-dip galvanized.

C. Related Sections:

1. Section 01 00 00 – General Requirements

2. Section 11-3 – Welding

1.02 REFERENCE STANDARDS

A. American Galvanizers Association (AGA):

1. Inspection of Hot-Dip Galvanized Steel Products

B. American Institute of Steel Construction, Inc. (AISC):

1. AISC 303 – Code of Standard Practice for Steel Buildings and Bridges

2. AISC 360 – Specification For Structural Steel Buildings

C. American National Standards Institute (ANSI):

1. ANSI/AWS A2.4 – Standard Symbols for Welding, Brazing, and Nondestructive Examination

2. ANSI/ASME B18.2.1 – Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)

3. ANSI B18.6.3 – Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series)

D. American Welding Society, Inc. (AWS):

1. AWS D1.1 – Structural Welding Code
2. AWS W1:2000 – Welding Inspection Handbook, 3rd Edition Chapter 11 Qualifications of Welders and Welding Operators

E. ASTM International (ASTM):

1. ASTM A6 – Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
2. ASTM A27 – Standard Specification for Steel Castings, Carbon, for General Application
3. ASTM A29 – Standard Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought
4. ASTM A36 – Standard Specification for Carbon Structural Steel
5. ASTM A47 – Standard Specification for Ferritic Malleable Iron Castings
6. ASTM A48 – Standard Specification for Gray Iron Castings
7. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
8. ASTM A108 – Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
9. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
10. ASTM A143 – Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
11. ASTM A148 – Standard Specification for Steel Castings, High Strength, for Structural Purposes
12. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
13. ASTM A194 – Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
14. ASTM A242 – Standard Specification for High-Strength Low-Alloy Structural Steel
15. ASTM A283 – Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
16. ASTM A307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength
17. ASTM A325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

18. ASTM A370 – Standard Test Methods and Definitions for Mechanical Testing of Steel Products
19. ASTM A384 – Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies
20. ASTM A385 – Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
21. ASTM A449 – Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use
22. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
23. ASTM A501 – Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
24. ASTM A514 – Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding
25. ASTM A536 – Standard Specification for Ductile Iron Castings
26. ASTM A568 – Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for
27. ASTM A575 – Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades
28. ASTM A576 – Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality
29. ASTM A563 – Standard Specification for Carbon and Alloy Steel Nuts
30. ASTM A588 – Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance
31. ASTM A618 – Standard Specification for Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing
32. ASTM A668 – Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use
33. ASTM A673 – Standard Specification for Sampling Procedure for Impact Testing of Structural Steel
34. ASTM A780 – Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
35. ASTM A1011– Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
36. ASTM B6 – Standard Specification for Zinc

37. ASTM D6386 – Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting

38. ASTM F436 – Standard Specification for Hardened Steel Washers

39. ASTM F959 – Standard Specification for Compressible-Washer-Type Direct Tension Indicators for use with Structural Fasteners

40. ASTM F3125 – Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions

F. California Building Code (CBC)

G. Federal Specifications (FS):

1. FS FF-W-84 – Washers, Lock (Spring)

2. FS FF-W-92 – Washer, Flat (Plain)

H. National Association of Architectural Metal Manufacturers (NAAMM):

1. NAAMM MBG 531 – Metal Bar Grating Manual

I. Research Council on Structural Connections (RCSC):

1. Specification for Structural Joints Using ASTM A325 or A490 Bolts

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. For Steel Structure:

1. Shop Drawings:

a. Submit detailed shop drawings of structural steel work, showing sizes, details of fabrication and construction, methods of assembly, locations of hardware, anchors, and accessories, and erection sequence and details. Include procedures for heavy lifts and rigging.

b. Shop drawings shall include member identity, welding technique, cuts, copes, gussets, connections, holes, fasteners, camber, fabrication and erection tolerances, type of finish, weights of members, and critical clearances.

c. Welds, both shop and field, shall be indicated by standard welding symbols of ANSI/AWS A2.4. Drawings shall show the size, length, and type of each weld.

1) Indicate individual welders' identification (I.D.) on project record drawings.

d. Investigate stresses caused by the proposed erection procedure. Submit drawings showing details of required temporary supports, staying, and bracing. Include descriptive data and design calculations to illustrate the

erection, transportation, and handling procedures, including sequence of erecting and transfer of loads if applicable.

e. Furnish setting diagrams, templates, and directions for the erection of structural framing, anchor bolts, bearing plates, and other embedded items.

f. Contractor shall be responsible for errors of fabrication and for correct fitting of structural members.

2. Product Data: Submit manufacturer's product data of load-indicator washers (Compressible-Washer-type direct tension indicators) when proposed for use.

3. Mill Test Reports:

a. Submit mill test reports of structural steel materials showing conformance with the hereinafter specified ASTM Specifications.

b. Steel materials that are not properly certified as conforming to specified ASTM Specifications will be rejected.

4. Welding Records and Data: Refer to Section 11-3, Welding.

C. For Metal Fabrication:

1. Submit Shop Drawings for the fabrication and erection of assemblies of metal work that are not completely shown by manufacturer's data sheets. Include plan elevations at not less than 1 inch to 1 foot scale, and include details of sections and connections at not less than 3 inch to 1 foot scale. Show anchorage and accessory items.

2. Submit manufacturer's product data, load tables, dimension diagrams, and anchor details indicating compliance with the requirements of the Contract Documents, and installation instructions for products to be used in the fabrication of metal work, including paint products.

3. Welder certifications and qualifications, as required by AWS W1:2000 CH11.

D. For Miscellaneous Metal:

1. Shop Drawings: Submit fully detailed shop drawings of metal fabrications and miscellaneous metalwork, showing sizes, details of fabrication and construction, methods of assembly, locations of hardware, anchors, and accessories, and installation details.

2. Product Data: Submit manufacturers' product data of all manufactured items and products.

1.04 QUALITY ASSURANCE

A. The metal work, except as otherwise shown on the Contract Plans or specified in these specifications, shall comply with the Codes, Specifications, and Standards specified in these Specifications.

B. For Steel Structure:

1. Indicated Dimensions: Unless otherwise shown on the Contract Plans, dimensions at expansion joints and similar construction were determined for a temperature of

50 degrees Fahrenheit. Make proper adjustments for temperature when the structure is to be fabricated and installed at any other temperature.

2. Calibration of Torque Wrenches:

   a. The calibrating device for setting calibrated torque wrenches shall be checked for accuracy by the Contractor's qualified personnel not more than 30 days prior to its first use on the work, and at intervals not more than six months thereafter.

   b. If the Engineer has reason to question the accuracy of the calibrating device, it may require that it be returned to the manufacturer for certification of its accuracy.

   c. Calibrate torque wrenches as specified in Section 7 of the "Specification for Structural Joints Using ASTM A325 or A490 Bolts, June 30, 2004," by the Research Council on Structural Connections.

3. Qualifications of Welders and Welding Procedures: Refer to Section 11-3, Welding.

C. For Metal Fabrication:

1. The Contractor shall perform the following:

   a. Material qualification testing and certification for acceptance of materials, components, and assemblies.

   b. Job control testing of in-progress work being performed in shops, factories, and on-site.

   c. On-site inspection of specified work elements.

2. Qualifications: Provide major items of Work fabricated by a firm that has been specializing in custom type metal fabrication for a minimum of 5 years on work of similar scope. Employ experienced trades workers for both fabrication and installation, who are capable of producing Work of the highest standards of quality in the industry.

3. Inspection and Tests:

   a. Inspections, tests, and samples shall conform to listed ASTM Specifications and Standards.

   b. Inspection rights and privileges, procedures, and acceptance or rejection of galvanized steel materials shall conform to ASTM A123.

   c. Inspection and tests include the following:

      1) Visual examination of samples and finished products.

      2) Tests to determine weight or mass of zinc coating per square foot of steel surface.

      3) Tests to determine distribution and uniformity of zinc coating.

4) Tests to determine thread fittings of units and to determine fitting of washers to bolts.

1.05 DELIVERY, STORAGE, AND HANDLING

A. For Steel Structure:

1. Avoid bending, scraping, and overstressing the steelwork. Block with wood, or otherwise protect, projecting parts that may be bent or damaged.

2. Mark weight and piece (mark) number, corresponding to shop erection sequence drawing, on all members. Match-mark all shop pre-fitted members.

3. Ship small parts, such as bolts, nuts, washers, pins, fillers, clips, and small connecting plates and anchors in boxes, crates, or barrels. Pack separately each length and diameter of bolt and each size of nut and washer. Plainly mark an itemized list and description of the contents on the outside of each container.

4. Load, transport, unload, and store structural steel materials in such a manner that the metal is kept clean and free from injury. Store materials above ground on platforms, skids, or other supports, and cover and protect from corrosion.

5. Handle and store beams in such a manner that they will have the required camber after erection.

B. For Metal Fabrication:

1. Packaging: Of type to prevent damage to galvanized surfaces and distortion of steel materials and components.

2. Handling and Storage:

a. Conform to ASTM A123.

b. Protect galvanized materials from damage to zinc coating.

c. To avoid humid storage stain, space surfaces of galvanized materials to permit free circulation of air.

3. Damaged Materials:

a. Repair material showing evidence of damage to zinc coating.

b. If not repairable, material with damaged coating will be subject to rejection.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General: Manufactured steel clips and angles may be submitted for approval where such will meet the requirements of the Contract Plans.

B. Structural Steel for Buildings and Other Structures:

1. Carbon Steel: ASTM A36.

2. High-Strength Steel: ASTM A242 or A588, Grade or Type as shown on the Contract Plans.

3. High-Strength Plate for Welding: ASTM A514.

4. Impact Tests: Where ASTM A242 or A588 steel is used for structures subject to impact loading, each heat shall be qualified by Charpy impact testing in accordance with ASTM A370 and A673, and as specified herein.

C. Structural Tubing:

1. Cold-Formed Carbon Steel: ASTM A500, Grade B or as shown on the Contract Plans.

2. Hot-Formed Carbon Steel: ASTM A501, minimum yield point of 36,000 psi.

3. High-Strength, Low-Alloy Steel: ASTM A618, Grade as shown on the Contract Plans.

D. Pipe: ASTM A53, Type E or Type S, Grade B (minimum yield point of 35,000 psi).

E. Steel Pins:

1. Greater than 9 inches in diameter: ASTM A668, Class B, C, or D.

2. 9 inches and less in diameter: ASTM A668, Class B, C, or D, or ASTM A108, Grades 1016 through 1030.

F. Anchors and Fasteners:

1. Anchors, Bolts, Nuts, and Washers: Bolts and studs, nuts, and washers shall conform to ASTM A307, Grade A, and ASTM A449, A563, and F436, as applicable. Bolts and studs, nuts, and washers shall be hot-dip galvanized in accordance with ASTM A153, except bolts, nuts, and washers for structural steel shall be machined items without protective coatings.

2. High-Strength Carbon Steel Bolts, Nuts, and Washers: ASTM A325, Type 1; except provide Type 3 for corrosion-resistant steel.

3. High-Strength Alloy Steel Bolts, Nuts, and Washers:

a. Bolts: ASTM F3125, Type 1; except provide Type 3 for corrosion-resistant steel.

b. Nuts:

1) For Type 1 Bolts: ASTM A194, Grade 2H, or ASTM A563, Grade DH.

2) For Type 3 Bolts: ASTM F3125.

3) Washers: ASTM A325 or ASTM F436, type of steel to match bolt.

4. Load-Indicator Washers: ASTM F959, for use with ASTM A325 or F3125 Bolts, as applicable.

5. Lubricant for Bolts: Molybdenum disulfide base.

G. Stud Shear Connectors:

1. Stud connectors shall be produced by cold heading, cold rolling, or cold machining. Finished stud connectors shall be uniform quality and free of injurious laps, fins, seams, cracks, twists, bends, or other defects. Studs shall not have cracks or bursts deeper than one-half the thickness from the periphery of the head to the shaft. Tensile strength of stud connectors shall be determined by tests of bar stock after drawing or of full diameter finished studs. Strength requirements shall conform to the following:

Tensile Strength (min.)	Elongation (min.)	Reduction of Area (min.)
60,000 psi	20 percent in 2 inches	50 percent

2. Stud connectors shall be furnished with arc shields (ferrules) of heat-resistant ceramic or other suitable material for welding.

H. Forgings: ASTM A668, Class C for carbon steel and Class G for alloy steel.

I. Castings:

1. High-Strength Steel: ASTM A148, grade as shown on the Contract Plans.
2. Mild-to-Medium-Strength Carbon Steel: ASTM A27, grade as shown on the Contract Plans.
3. Malleable Iron: ASTM A47, Grade 35018.
4. Gray Iron: ASTM A48, Class 30B.

J. Welding Electrodes: Refer to Section 11-3, Welding for requirements.

K. For Metal Fabrication:

1. Structural Steel Shapes and Plates: ASTM A36 and ASTM A6.
2. Steel Plate for Cold Forming: ASTM A283 Grade C and ASTM A6.
3. Hot-Rolled Steel Bars (including Bar-size Shapes): ASTM A575 (Merchant Quality) or ASTM A576 (Special Quality), quality and grade as selected by fabricator as best suited for its use and ASTM A29.
4. Cold-Finished Steel Bars: ASTM A108, grade as selected by fabricator as best suited for its use, and ASTM A29.
5. Steel Pipe: ASTM A53, Type E, F, or S at fabricator’s option, Grade A, black finish unless shown on the Contract Plans as galvanized, standard weight (Schedule 40) unless otherwise shown on the Contract Plans.
6. Hot-Formed Rectangular Steel Tubing: ASTM A501, butt-welded, cold-finished and stress relieved.
7. Gray Iron Castings: ASTM A48, Class 30B.
8. Malleable Iron Castings: ASTM A47, grade as selected by the fabricator as best suited for its use.

9. Steel Sheet for Cold-Forming: ASTM A1011 and ASTM A568, hot-rolled sheet steel of commercial quality, pickled and oiled, free of defects which would impair the work.

10. Material for Galvanizing:

    a. Geometrically suitable for galvanizing as specified in ASTM A384 and A385.

    b. Steel materials suitable for galvanizing include structural shapes, pipe, sheet, fabrications, and assemblies.

    c. Material shall be chemically suitable for galvanizing. Verify with supplier or fabricator.

11. Zinc for Galvanizing: Conform to ASTM B6, as specified in ASTM A123.

L. For Miscellaneous Metal:

1. General: Manufactured steel clips and angles may be submitted for approval where such will meet the requirements of the Contract Plans.

2. Steel Materials:

    a. Shapes: Standard structural sections, shapes, plates, and bars, as shown on the Contract Plans, conforming to ASTM A36. Bars conforming to ASTM A108 will be accepted.

    b. Tubing: Steel tubing, conforming to ASTM A500 or ASTM A501, of size and shape shown on the Contract Plans.

    c. Pipe: Steel pipe or round tubing, conforming to ASTM A53, Type E or S, Grade A, of diameters and sizes shown on the Contract Plans. Pipe for sleeves and exterior locations shall be galvanized pipe as specified in ASTM A53.

3. Welding Rods/Electrodes: Refer to Section 11-3, Welding, for requirements.

4. Castings: ASTM A27, A47, A48, or A536, as applicable to the work.

5. Forgings: ASTM A668, of Class shown on the Contract Plans or required.

6. Anchors and Bolts: ASTM A307, A449, A563, and F436, as applicable. Bolts and studs, nuts, and washers shall be hot-dip galvanized in accordance with ASTM A153.

7. Fasteners and Accessories: Furnish anchors and fasteners, washers, straps, and accessories as required for a complete and finished installation. Fasteners shall be stainless steel or galvanized steel as appropriate and approved for the location. Machine screws shall be used wherever possible.

8. Concrete and Masonry Anchors: Where anchors are not cast into the concrete or masonry construction, provide galvanized expansion type anchors with matching galvanized steel bolts or studs with nuts, of sizes as shown on the Contract Plans or required. Provide washers under all bolt heads and nuts.

M. For Fasteners and Anchorage Materials:

1. Fasteners shall be stainless steel or epoxy-coated to prevent rusting or staining.

2. Items listed below are indicated for minimum general conditions, and may be superseded by Article 2.02A.

   a. Structural Connectors:

      1) Bolts: ASTM A307, Grade A or ASTM A325

      2) Nuts: ASTM A563

      3) Washers: ASTM F436.

      4) Machine Screws: FS FF-S-92, cadmium-plated steel

   b. Expansion Bolts: Toothed steel or lead shield expansion devices of the type and size shown on the Contract Plans, with galvanized bolts, except do not use lead shield for overhead anchorage.

   c. Lag Bolts: ANSI/ASME B18.2.1, type and grade as required.

   d. Toggle Bolts: ANSI B18.6.3, type and class as required.

   e. Washers: Carbon steel; plain, round complying with FS FF-W-92; locking, helical spring complying with FS FF-W-84.

   f. Concrete Inserts: Unit-type inserts of the type and size shown on the Contract Plans, of cast iron, malleable iron or hot-dip zinc-coated steel.

   g. Non-shrink, Non-ferrous Grout: Por-Rok Anchoring Cement, Lehn & Fink Industrial Products, Div. of Sterling Drug, or approved equal.

2.02 FABRICATION

A. For Steel Structure:

1. Structural steelwork shall conform to the applicable requirements of the California Building Code (CBC) and AISC 360, Specifications for Structural Steel Buildings-Allowable Stress Design and Plastic Design.

2. Welding and welded connections shall conform to the requirements of Section 11-3, Welding.

3. Steel members and metal fabrications shall be prefabricated and preassembled in the factory or shop as far as practicable.

4. Form and fabricate the work to meet installation conditions. Include accessories to adequately secure the work in place.

5. Straighten rolled material, if necessary, before it is laid out for fabrication, in a manner conforming to the mill tolerances specified in ASTM A6, and by a process and in a manner which will not injure the material. Sharp kinks and bends shall be cause for rejection of the material. Heat shrinking of low-alloy structural steel shall not be permitted.

6. Perform shearing, flame cutting, and chipping carefully and accurately so as not to induce residual stress in the metal being cut. The radii of re-entrant gas-cut fillets shall be not less than 3/4 inch and as much larger as practicable. Perform flame

cutting in such manner that metal being cut is not carrying stress. Cut edges exposed in the finished work shall be machine cut, sheared, or flame cut, and ground flush. All working points shall be maintained.

7. Fabricate bearing stiffeners and stiffeners intended as supports for concentrated loads as shown on the Contract Plans. Mill or grind bearing surfaces of these stiffeners.

8. Bend load-carrying cold-rolled steel plates cold at right angles to the direction of rolling. The radius of bend, measured to the concave face of the metal, shall be not less than indicated in the following table, in which T is the thickness of the plate.

Angle through which plate is bent	Minimum Radius
61 to 120 degrees	1.0 T
121 to 150 degrees	2.0 T

   a. If a shorter radius is shown on the Contract Plans, bend the plate hot. Before bending, round plate edges, where bending occurs, to a radius of 1/16 inch.

9. Connections shall be bolted or welded as shown on the Contract Plans.

10. Holes shall be cut, drilled, or punched at right angles to the surface of the metal and shall not be made or enlarged by burning. Holes in base or bearing plates shall be drilled. Holes shall be provided in members to permit connecting the work of other trades. Holes shall be punched or drilled at 1/16 inch larger than the diameter of the bolt.

11. For high-strength bolting, assemble joints and install bolts in accordance with RCSC, Specification for Structural Joints Using ASTM A325 or A490 Bolts. Hardened-face washers shall be used for all connections using ASTM F3125 bolts. Assembly of joints using load-indicator washers shall conform to ASTM F959. High-strength bolting shall be inspected by a qualified inspector acceptable to the Engineer.

12. For items bearing on concrete, provide steel bearing plates and anchors as shown on the Contract Plans. Base or bearing plates shall be leveled by means of adjustment nuts. Templates shall be furnished, together with instructions for setting of anchors, anchor bolts, and bearing plates. Contractor shall assure that anchors and related items are properly set in concrete during the progress of the work.

13. Fabricate metal bearing surfaces which will come in contact with preformed elastomeric bearing pads or grout, flat to within 1/8 inch tolerance in 12 inches and to within 3/16 inch overall.

14. Include reinforcing angles, clip angles, plates, punched straps, brackets, and hangers as required to complete the work as shown on the Contract Plans.

15. Provide drainage holes in structural components where water may accumulate without escape.

16. Fabricate architecturally exposed structural steel members straight within one-half of the standard camber and sweep tolerances permitted by ASTM A6.

B. For Metal Fabrication:

1. For the fabrication of metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, grinding, or by welding and grinding, prior to cleaning, treating and application of finishes including zinc coatings.

2. Use materials of the size and thicknesses shown on the Contract Plans, or if not shown, of the required sizes and thickness to produce adequate strength and durability in the finished product for the intended use. Work to the dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use the type of materials shown on the Contract Plans or specified in these specifications for the various components of work.

3. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown on the Contract Plans. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

4. Verify dimensions by accurate field measurement before fabrication wherever work adjoins other work that precedes it in construction. However, do not delay job progress; allow for trimming and fitting of metal work wherever the taking of field measurements before fabrication might delay the work. On shop drawings, note which dimensions have been verified by field measurement.

5. Weld corners and seams continuously and in accordance with Section 11-3, welding, and the recommendations of AWS D1.1. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

6. Form exposed connections with hairline joints which are flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of the type shown on the Contract Plans, or if not shown, use Phillips flat-head (countersunk) screws or bolts.

7. Predrill bolt and screw holes as shown on the Contract Plans and as required for attachment of metal work and for the attachment of adjacent materials.

8. Furnish inserts and anchoring devices which must be set in concrete for the installation of metal work. Coordinate delivery of such devices with other work to avoid delay.

9. Provide for anchorage of the type shown on the Contract Plans. Fabricate and space anchoring devices as shown on the Contract Plans and as required to provide adequate support for the intended use of the work.

10. Cut, reinforce, drill and tap metal work as may be required to receive finish hardware and similar items of work.

11. Use hot-rolled steel bar for work fabricated from bar stock, unless work is shown on the Contract Plans or specified in these specifications to be fabricated from cold-finished or cold-rolled stock.

12. Preassemble work at shop to the greatest extent possible to minimize field splicing assembly of units at the worksite. Disassemble units to the extent necessary to comply with shipping limitations. Mark all units clearly for reassembly and proper installation.

13. Where shown on the Contract Plans as galvanized, complete the shop fabrication prior to application of the coating. Remove mill scale and rust, clean and pickle the units as required for coating. Apply hot-dip zinc coating of two ounces in accordance with ASTM A123.

C. For Miscellaneous Metal:

1. Metalwork shall be fabricated by firms or shops experienced and skilled in the custom fabrication and construction of metal fabrications and miscellaneous metalwork.

2. There shall be no exposed screws, bolts, and fasteners in the finished work, except as shown on the Contract Plans or required.

3. Welded connections shall be made in accordance with requirements of Section 11-3, Welding. Welds where exposed to view shall be ground down and dressed smooth, so that the shape and profile of the item welded is maintained.

4. Metal fabrications shall be prefabricated and preassembled in the factory or shop as far as practicable.

5. Form and fabricate the work to meet installation conditions. Include anchors, fasteners, and accessories to secure the work in place, as shown on the Contract Plans.

6. The Contractor may furnish standard manufactured products for components when applicable, providing such products meet space limitations, specified requirements and installation conditions and are approved by the Engineer.

2.03 GALVANIZING

A. Steel members, fabrication, and assemblies to be galvanized after fabrication:

1. Method: Hot-dip process in accordance with ASTM A123.

2. Weight of zinc coating to conform to requirements specified under “Weight of Coating” in ASTM A123, as applicable.

B. Safeguard against steel embrittlement in conformance with ASTM A143.

C. Safeguard against warpage or distortion of steel members to conform to ASTM A384. Notify the Engineer of potential warpage problems which may require modification in design before proceeding with steel fabrications.

D. Finish and uniformity of zinc coating and adherence of coating shall conform to ASTM A153.

E. Passivating: Galvanizing materials subject to extended periods of storage in open, exterior locations shall be given passivating treatment or light oiling to prevent humid storage stain; treatment, solution and process shall be subject to review and approved by the Engineer.

F. Preservative Oils: Do not treat freshly galvanized or passivated surfaces with oils, grease, or chemicals which might interfere with adhesions of subsequent paint primers and coatings.

Galvanized surfaces that are to be subsequently covered with paint primer or coating shall have the surface prepared in accordance with ASTM D6386 prior to coating with paint or primer.

G. Field Inspection: Visually inspect galvanized materials, fabrications, and assemblies for conformity with applicable requirements of AGA, Inspection Manual for Hot-Dip Galvanized Products.

H. For Miscellaneous Metal:

1. Steel and ferrous metal items for outdoor installation, items exposed to moisture and items where shown on the Contract Plans, shall be galvanized after fabrication by the hot-dip process in accordance with ASTM A123. Weight of the zinc coating shall conform to the requirements specified under “Weight of Coating” in ASTM A123.

2. Safeguarding against steel embrittlement shall conform to the applicable requirements of ASTM A143.

3. Safeguarding against warpage and distortion of steel members shall conform to the applicable requirements of ASTM A384.

4. Shop galvanized metalwork necessitating field welding which in any manner removes original galvanizing shall be restored by field galvanizing repair in accordance with ASTM A780.

5. Bolts and screws for attachment of galvanized items shall be galvanized in accordance with ASTM A153.

PART 3 – EXECUTION

3.01 ERECTION AND INSTALLATION

A. For Steel Structure:

1. Reference Standards: Erection and installation of structural steel shall conform to the applicable requirements of AISC 360, Specifications for Structural Steel Buildings: Allowable Stress Design and Plastic Design.

2. Lines and Levels: Structural steel shall be installed accurately at established lines and levels. Steel shall be plumb and level before bolting is commenced. Installation shall be in accordance with accepted shop drawings and actual conditions, true and horizontal or perpendicular as the case may be, level and square, with angles and edges parallel with related lines of the building.

3. Temporary Bracing: Temporary bracing shall be provided as required and shall be kept in position until final completion. Shop fabricated items subject to damage shall be braced and carefully handled to prevent distortions or other damage.

4. Anchors, Anchor Bolts, Studs, and Fasteners:

a. Shop connections shall be welded and field connections bolted, unless otherwise shown on the Contract Plans. Use washers under bolt heads and nuts to give full grip when nuts are turned tight. Use beveled washers where bolts bear on sloping surfaces.

b. Anchors, bolts and washers, inserts, studs, and fasteners as required for the erection, installation, and completion of the work, and other miscellaneous steel or iron fastenings to be installed in forms before concrete placement, or built into concrete, shall be provided as shown on the Contract Plans at the time scheduled for this work.

c. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

5. Bases and Bearing Plates: Bases and plates which require grouting shall be supported at the correct level by means of adjustment nuts on anchor bolts. Bases and plates shall be set accurately using a high-strength, non-shrink grouting mortar as specified in Article 2.01.M.2.g.

6. Erection and Assembly:

a. After erection and field assembly, the various members forming parts of the completed structure shall be aligned and adjusted accurately before being fastened. Tolerances shall conform to the applicable requirements of AISC 303.

b. Fastening of splices of compression members shall be performed after the abutting surfaces have been brought into contact. Bearing surfaces and surfaces which will be in permanent contact shall be cleaned before the members are assembled. Splices will be permitted only where shown on the Contract Plans.

c. Unless removal is required, erection bolts used in welded construction may be tightened securely and left in place. If erection bolts are removed, the holes shall be filled with plug welds and ground smooth. Poor matching of holes shall be corrected by drilling to the next larger size and providing the next larger size bolt. Welding for redrilling will not be permitted.

7. Driftpins: Driftpins may be used only to bring together the several parts or components. Fit-up bolts and driftpins shall not be used to bring out-of-tolerance fabricated members and components into alignment. Driftpins shall not be used with such force as to distort or damage the material. Structural steel or miscellaneous/supplemental steel which was fabricated incorrectly shall be brought to the attention of the Engineer.

8. Gas Cutting: The use of a gas-cutting torch in the field for correcting fabrication errors will not be permitted on any major member. The use of a gas-cutting torch will be permitted only on minor members, when the member is not under stress, and then only after the approval of the Engineer has been obtained.

9. Bolting:

a. Bolts shall be driven accurately into holes without damaging the thread. Bolt heads shall be protected from damage during driving. Washers shall be placed under all bolt heads and nuts. Bolt heads and nuts shall rest squarely against the washers.

b. Where bolts are to be used on beveled surfaces having slopes greater than 1 in 20 with a plane normal to the bolt axis, beveled washers shall be provided to give full bearing to the head or nut. Bolt threads shall be upset or spoiled to prevent the nuts from backing off.

c. Bolts transmitting shear shall be threaded to such a length that not more than one thread will be within the grip of the metal.

d. Bolts shall extend through but not more than 1/4-inch beyond the nuts, unless otherwise shown on the Contract Plans. Bolt heads and nuts shall be drawn tight against the work with a suitable wrench not less than 15 inches long. Bolt heads shall be tapped with a hammer while the nut is being tightened. After having been finally tightened, nuts shall be locked by upsetting or spoiling the threads as close as possible to the nut face and to a depth of penetration necessary to deform one or more threads on the bolt.

10. High-Strength Bolting:

a. Assemble joints in accordance with RCSC Specifications for Structural Joints Using ASTM A325 or A490 Bolts.

b. Tighten bolts with calibrated impact wrenches to a torque not less than recommended for the size of the bolt.

c. Assembly of joints using load-indicator washers shall conform to ASTM F959.

d. Contact surfaces of joints shall be free of paint, lacquer, or other friction-reducing coatings.

11. Sliding Joints: Properly clean sliding-joint assembly bearing surfaces and lubricate as required.

B. For Metal Fabrication:

1. Set metal work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Temporarily embrace or anchor in formwork where work is to be built into concrete.

2. Fit exposed connections accurately together to form tight, hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind joints smooth, and touch up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

3. Anchor securely as shown on the Contract Plans or as required for the intended use, using concealed anchors wherever possible.

4. Grout with non-shrinking, non-ferrous cement grout, or pack with lead wool and caulk where pipe sleeves are used to support metal work. Provide galvanized steel pipe on pipe sleeves not less than six inches long and having an inside diameter not less than 1/2 inch greater than outside diameter of insert.

5. Install insulating devices or butyl tapes in between dissimilar metals.

C. For Miscellaneous Metal:

1. Install metal fabrications and miscellaneous metalwork in accordance with the Contract Plans and the approved shop drawings, using workers skilled and experienced in the installation of the type of work involved.

2. Install metal fabrications and miscellaneous metalwork with all accessories furnished by the fabricator as required for complete and finished installations.

3. Installation of metalwork shall be in accordance with approved shop drawings, true and horizontal, perpendicular, or at the required angle, as the case may be, level and square, with angles and edges parallel with related lines of the building or structure.

4. Field welding, where required, shall conform to requirements of Section 11-3, Welding.

3.02 TOUCH-UP AND GALVANIZING REPAIR

A. Immediately after erection, clean field welds, bolted connections and abraded areas of shop coating. Coat areas of damaged galvanizing as specified for galvanizing repair.

B. Galvanizing Repair: Galvanized surfaces which have become damaged from welding, handling, or installation shall be repaired immediately after installation with galvanizing repair material in accordance with ASTM A780.

3.03 FIELD QUALITY CONTROL

A. Field-assembled and installed high-strength bolting shall inspected and torque-tested in accordance with RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts by a qualified inspector accepted by the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Steel Structures, Metal Fabrications, and Miscellaneous Metals as specified in this section shall be considered as incidental and included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 39
METAL OCS POLES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. This Section includes the requirements for designing, furnishing, and installing new tapered steel poles as part of the Overhead Contact System (OCS).

2. Refer to Section 01 00 00 Part 2 for Owner Furnished Products. Specifications describing the manufacturing and/or purchasing of these products are included for reference and if changes require the Contractor to furnish extras.

B. Section Includes:

1. Tapered steel OCS poles

C. Related Sections:

1. Section 01 00 00 - General Requirements

2. Section 34 23 73 – OCS Fittings and Hardware

1.02 REFERENCE STANDARDS

A. American Institute of Steel Construction, Inc. (AISC):

1. AISC S325 – Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings

2. AISC 303 – Code of Standard Practice for Steel Buildings and Bridges

B. ASTM International (ASTM):

1. ASTM A36 – Standard Specification for Carbon Structural Steel

2. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

3. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

4. ASTM A143 – Standard Specification for Safeguarding Against Embrittlement of Hot-Dip Galvanized Steel Products and Procedure for Detecting Embrittlement

5. ASTM A153 – Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware

6. ASTM A283 – Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates

7. ASTM A370 – Standard Test Methods and Definitions for Mechanical Testing of Steel Products

8. ASTM A384 – Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies
9. ASTM A572/A572M – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
10. ASTM A595/A595M – Steel Tubes, Low-Carbon or High-Strength Low-Alloy, Tapered for Structural Use
11. ASTM A780/A780M – Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
12. ASTM B6 – Standard Specification for Zinc
13. ASTM E709 – Standard Guide for Magnetic Particle Testing

C. American Welding Society (AWS):

1. AWS D1.1 – Structural Welding Code, Steel

D. Military Standards (MIL):

1. MIL-DTL-24441/20B – Detail Specification Sheet: Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type III

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Shop Drawings: The Contractor shall submit shop drawings for review giving complete information necessary for fabrication of the poles. The shop drawings shall be to scale and shall indicate all fittings, holes, and accessories, and the locations, sizes, and types of all welds. The Contractor's schedule for submittal of OCS poles shop drawings shall take into account the long lead time for poles.

C. Welding: The Contractor shall submit for approval:

1. Specifications for welding procedures in accordance with AWS D1.1.
2. Certificates of qualifications of welders, welding operators, and tackers in accordance with AWS D1.1.
3. Certificate of qualification of welding inspectors in accordance with AWS D1.1.

D. Submit test procedures for pole deflection test.

E. Submit test reports for ultrasonic and magnetic particle weld testing.

F. Proofs of Compliance: Before commencing fabrication, the Contractor shall submit for review the manufacturer's certificates of compliance, or certified laboratory test reports demonstrating the compliance of all raw materials and fabricated products with Article 2.02. Included shall be a listing of the ASTM standards designated by the manufacturer.

G. Test Reports: Six copies of certified laboratory test reports shall be submitted within five days of each test, or series of tests, in accordance with the requirements of Article 1.04.

1.04 QUALITY ASSURANCE

A. The Contractor shall perform the following:

1. Material qualification testing and certification for acceptance of materials, components, and assemblies.

2. Job control testing of in-progress work being performed in shops, factories, and on-site.

3. On-site inspection of specified work elements.

B. Material Testing: The chemical compositions and appropriate mechanical properties of all materials used shall be determined, either by obtaining manufacturer's certificates of compliance or by laboratory testing at an approved facility.

C. Weld Testing:

1. The services of an AWS Certified Welding Inspector shall be provided by the pole fabricator:

a. Inspect fabrication operations

b. Inspect welding procedures

c. Inspect welding personnel

d. Perform ultrasonic and magnetic particle testing

2. A visual inspection of all welds shall be performed in conformance with the AWS D1.1.

3. Weld testing shall be performed on a sample number of each type of pole, selected at random, comprising 5 percent of the total number of poles. All poles selected for testing shall be tested by the ultrasonic and magnetic particle methods.

4. Equipment, procedures, and personnel for weld testing, and test reports, shall conform to the requirements of AWS D1.1, Section 6, Inspection.

5. Weld testing shall consist of the following:

a. Ultrasonic testing conforming to the requirements of AWS D1.1, Section 6.

b. Magnetic particle testing conforming to the requirements of ASTM E709.

6. Ultrasonic testing shall be performed on the complete penetration welds between the pole shaft and pole base, and on any circumferential welds in the pole shaft. Magnetic particle testing shall be performed on all other welds, including longitudinal seam welds and welds at handholes, cable outlets, and other welded-on attachments and reinforcements.

7. For each tested pole that is found to be unacceptable, weld testing shall be performed on a further sample of two poles, selected at random.

8. Welds found to be unacceptable shall be repaired in accordance with AWS D1.1, Section 3, and retested.

D. Impact Testing: Structural steel materials for base plates and pole shafts shall be tested for impact toughness in accordance with the Charpy V-notch test as specified in ASTM A370. The minimum energy value shall be 15 ft-lbs. at 0 degree Fahrenheit.

E. Galvanizing Testing: All galvanized items shall be inspected for conformance with the requirements of the following ASTM specifications, as applicable:

1. Galvanizing Compliance: ASTM A123 or A153
2. Embrittlement: ASTM A143
3. Distortion: ASTM A384

1.05 DELIVERY, STORAGE, AND HANDLING

A. During fabrication and delivery, the poles shall be handled and transported in a manner to preclude damage to either the structural steel or the zinc coating.

B. Poles and bracket arms shall be delivered complete with associated fittings and accessories, properly packed and protected against damage and loss of parts, and protected from damage during storage and handling, and during moving from the storage facility to the installation sites.

PART 2 – PRODUCTS

2.01 DESIGN CRITERIA

A. All designs are subject to full aesthetic requirements review and must be accompanied by complete design calculations, and by full information on the materials, standards, and details used, and the proposed methods of fabrication. Designs shall conform to the following requirements:

1. Pole Design: Pole design shall conform to AISC S325 and AISC 303, and shall satisfy the strength and deflection criteria specified in Articles 2.01A.2 and 2.01A.3, using the materials specified in Article 2.02. Pole sizes, including diameter and taper, shall be as shown on the Contract Plans.

2. Pole Strength: Poles shall be designed by the working stress method of the AISC Specifications, using the design working moment (M) shown on the Contract Plans. The working moment (M) shall be multiplied by 1.10 to compensate for the effect of the axial load and overload factor required for strength design. The allowance for a one-third increase in allowable stress for wind combined loading shall be waived. The yield stress of the pole shaft shall not be less than 55 ksi.

3. Pole Deflections: The lateral deflections of poles of modified design due to maximum allowable bending moment without wind shall not exceed 2.5 percent of the pole height for standard pole applications, and with wind shall not exceed 2 inch at contact wire level, including foundation rotation effect.

2.02 MATERIALS

A. Poles: Pole shafts, hand-hole reinforcements, and covers shall be fabricated from one structural steel material type conforming to the following ASTM Specifications:

1. ASTM A283, Grade D, modified, with a guaranteed minimum yield strength of 42 ksi.

2. ASTM A572, Grades 50, 55, 60 or 65.

3. ASTM A595, Grades A or B.

B. Base Plates: Base plates shall be fabricated from structural steel conforming to ASTM A572 – Grade 50. The minimum yield stress capacity of the base plate steel shall be not less than 90 percent of the yield stress capacity of the pole shaft steel.

C. Pole Caps: Pole caps shall be galvanized pressed steel, fitted with three stainless steel set screws.

D. Handhole Cover Screws: Handhole cover screws shall be tamper resistant stainless steel Allen-type set screws. Tapped holes in the handhole frames may be furnished in lieu of nuts welded to the handhole frames.

E. Anchor Bolts: Anchor bolts shall be furnished and installed. The anchor bolts shall be embedded in the pole foundations, ready for pole installation.

F. Miscellaneous Structural Steel: Structural steel shall conform to the following specifications, unless otherwise specified:

1. Round Tubular Sections: ASTM A53, Grade B or S.

2. Other Sections: ASTM A36, Grade 36.

G. Weld Filler: Weld filler metal shall conform to AWS D1.1.

H. Zinc: Zinc used for hot-galvanized coating shall be Prime Western Grade, or approved equal, conforming to ASTM B6.

I. Zinc rich paint shall conform to MIL-P-24441/20, Type II; and shall be TnemecZinc Series 90-97 as manufactured by Tnemec Co., Inc.; or approved equal.

J. Galvanizing repair materials shall conform the requirements of ASTM A780.

2.03 FABRICATION

A. General: Poles, bracket arms, fittings, and accessories shall be fabricated to the dimensions shown on the Contract Plans.

B. Methods and Tolerances: Poles, bracket arms, fittings, and accessories shall be fabricated by methods and within tolerances conforming to the AISC S325 and AISC 303, except as specified herein.

C. Tolerances:

1. Diameter: Diameter shall be within 1/16 inch of the design diameter. Round poles shall be within 1/16 inch of perfect round.

2. Wall Thickness: Wall thickness shall be within plus 10 percent or minus 5 percent of the design thickness.

3. Taper: Taper shall be constant for the length of the pole as shown on the Contract Plans.

4. Straightness: Straightness shall be within 1/8 inch per 5 feet of pole length (1:480).

5. Tolerances for base plates shall be as follows:

a. Bolt Circle + 1/16 inch.

b. Hole Diameter + 1/16, - 0 inch.

c. Location of Holes + 1/16 inch in each direction.

D. Welding Procedures: Welding procedures, welders, welding operations and tackers shall conform to the provisions of AWS D1.1.

E. Weld Repair: Welds found to be unacceptable shall be repaired in conformance with the provisions of AWS D1.1, Section 3, Workmanship.

F. Surface Grinding: Before galvanizing, all penetration welds shall be ground flush with base metal to eliminate surface cracks. All other welds and cut edges shall be ground to eliminate sharp edges and burrs.

G. Embrittlement: Fabrication shall conform to ASTM A143 to prevent embrittlement of the steel.

H. Galvanizing: After fabrication, the poles, bracket arms, fittings and accessories shall be hot-dip galvanized inside and out, in conformance with ASTM A123 or ASTM A153, as appropriate. All fabrications shall be galvanized for their entire length, at one time, in a single hot-dip galvanizing bath. Galvanizing by successive dippings of partial pole lengths will not be permitted.

I. Straightening: After galvanizing, and cooling to ambient temperature, the poles and bracket arms shall be straightened as necessary to conform to the specified requirements. Straightening methods shall not require heating of the poles and shall not damage the zinc coating.

J. Pole Identification Plate: A stainless steel pole identification plate shall be attached to each pole immediately above the hand-hole, or 24 inches above the base plate. The plate shall show the pole type, structure number, and the manufacturer's name and date of manufacture. The plate design, style of lettering and method of attachment shall be reviewed by the Engineer. Letters shall be stamped, not laser etched.

K. Drain/Relief Holes: The inner plies of multiple-ply poles shall be drilled to provide drain/relief holes for use during galvanizing. Holes shall be arranged so that the strength of the pole is not reduced.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Pole Setting:

1. General: Steel poles shall be installed where shown on the Contract Plans. The Contractor shall furnish and install all fittings required for the specific installation, including, but not limited to, the following items:

a. Handholes.

b. OCS bracket arms.

c. Pole Caps.

d. Brackets for down guys.

2. Check and verify that the OCS Pole foundations have been installed at the location as shown on the OCS Layout Plans shown on the Contract Plans. This includes checking each foundation to assure that the bolt spacing and size is correct for the OCS Pole to be placed on that foundation. Also verify that the correct conduits, if required, are in place. This must be done 15 working days before the planned setting of the poles, and any deviations shall be brought to the attention of the Engineer.

3. Preparation of Pole Foundations: Steel poles are of the anchor base type, for installation on concrete foundations or structures with projecting anchor bolts left in place for setting and bolting of poles. Contractor shall protect these bolts from damage during construction.

4. Perform any corrective work to the OCS Pole foundations, such as chipping of concrete, cleaning of bolt threads, and procuring nut and washers for the anchor bolts. After the OCS Pole has been set, a minimum of two threads per bolt must protrude above the top nut.

    a. If two or more anchor bolts in a foundation are bent greater than 20 degrees or are broken, completely remove and replace the foundation. All anchor bolts or rod repair methods shall be approved by Engineer.

5. When a pole, transported to the site, requires temporary storage prior to setting onto the foundation, it shall be stored above ground and in such a manner that it does not interfere with other Contractors' work, create a hazardous condition, or result in damage to the finish or structural integrity of the pole.

6. The type, location and setting height shall be as shown on the OCS layout schedule of the Contract Plans. Poles installed under this contract should be plumb after the OCS has been installed and the pole is fully loaded. It may be necessary to re-rake certain poles should these be out of alignment after loading. In these cases it may be necessary to readjust the OCS as required to meet installation tolerance.

7. Poles with hand-holes shall be installed such that the hand hole is located on the opposite side of the poles from vehicle travel on side poles. On center poles, the hand hole shall be located so that it faces parallel to the track, and spouts are facing correctly.

8. Poles shall be handled and erected using nylon or similar non-marking slings and chokers. Minor damage to galvanized or painted surfaces may be field repaired by approved touch-up paint or approved cold galvanize, applied in accordance with the manufacturer's instructions. Major damage to the poles may require that the pole involved be replaced.

9. Poles shall be covered by a suitable pole cap which shall be installed on the pole prior to setting of the poles.

10. Cutting of Steel Poles: Cutting of poles shall be done only where approved for the individual case. Where poles are cut, the cutting shall be done neatly, galvanized surfaces repaired, and caps fitted so that cut poles are installed to the standards specified herein for all other steel poles.

11. Pole hand holes are to be covered by appropriate handhole covers. They shall be properly mounted, secured to the pole with the number of screws as recommended by the manufacturer.

12. Poles on Retaining Walls or Elevated Structures: Poles with special foundations for location on retaining walls or elevated structures, shall be installed as specified for anchor base steel poles.

13. The Contractor shall obtain actual “as-built” information of each installed pole, by field measurement, and use that information to update the various dimensions shown on the OCS layout schedule of the Contract Plans.

14. Bracket Arms: Bracket arms shall be installed at the locations shown on the Contract Plans. Installation shall conform to the following requirements:

    a. Overhead Contact System support bracket arms shall be mounted within the tolerance limits, specified in Section 34 23 73, OCS Fittings and Hardware.

    b. Bracket arm installation shall allow for pole rake and deflection caused by applied dead loads and wire tension loads. After overhead contact systems are installed and fully adjusted to the specified tensions, bracket arms and poles shall be inspected, and readjusted as necessary to meet required tolerance.

15. Grounding: All steel poles installed by the Contractor shall be grounded as shown on the Contact Plans. Damage to the steel pole base plate galvanized coating shall be repaired in accordance with Article 3.02.

16. Additional Requirements:

    a. The poles shall be set not less than 7 days after foundations are constructed, and loaded to design requirements not less than 30 days after foundations are constructed.

    b. The Contractor shall exercise care during erection of poles to prevent abuse and disfigurement of poles. All imperfections on the steel poles shall be repaired as necessary to restore poles to a condition acceptable to the Engineer. Damage to galvanized coatings shall be touched up as specified in Article 3.02.

    c. Caution is advised during steel pole erection to prevent contact with other overhead, and possibly energized utilities.

3.02 TOUCH-UP AND GALVANIZING REPAIR

A. Immediately after erection, clean field welds, bolted connections and abraded areas of shop coating. Coat areas of damaged galvanizing as specified for galvanizing repair.

B. Galvanizing Repair: Galvanized surfaces damaged from welding, handling, or installation shall be repaired immediately after installation in accordance with ASTM A780.

3.03 FIELD QUALITY CONTROL

A. Delivered poles, bracket arms, fittings, and accessories will be inspected for conformance with requirements of this Section. Those which are not acceptable will either be repaired or removed at no additional expense.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. OCS Poles will be measured for payment by each.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished OCS Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished OCS Material.

B. The contract unit price paid for OCS Poles shall include full compensation for all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing OCS Poles complete in place, including grounding, grouting and touch up as specified in these Specifications, the Plans, and as directed by the Engineer.

END OF SECTION

SECTION 34 23 43
OCS DESIGN REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section covers the final design/shop drawings development for the Overhead Contact System (OCS) or Catenary System, which is broadly defined as those conductors and related items forming the overhead power distribution system, and comprises the messenger and contact wires, ancillary pull-offs and backbone wires, hangers, feeder cables, jumpers, sectioning devices, tensioning units and systems, and ground connections, together with their related supports, hardware, equipment, and insulation. For insulated wire and cables, refer to Section 34 21 07, Traction Power Insulated Wire and Cable for detail.

2. Refer to Section 01 00 00 Part 2 for Owner Furnished Products. Specifications describing the manufacturing and/or purchasing of these products are included for reference and if changes require the Contractor to furnish extras

B. Section Includes:

1. OCS Design Requirements

C. Related Sections:

1. Section 01 00 00 –General Requirements
2. Section 34 21 07 – Traction Power Insulated Wire and Cable
3. Section 34 23 39 – Metal OCS Poles

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI)

B. International Electrotechincal Commission (IEC)

C. California Building Code (CBC)

D. California Public Utilities Commission (CPUC):

1. CPUC GO 95 – Overhead electric line construction
2. CPUC GO 143B – Safety Rules and Regulations Governing Light Rail Transit
3. CPUC GO 26 – Clearances on railroads and street railroads as to side and overhead structures, parallel tracks and crossings

E. Institute of Electrical and Electronics Engineers (IEEE):

1. IEEE 1630 – Supporting Structures for OCS for Transit Systems Standard

F. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. AREMA Chapter 33 – Part 2 and Part 4

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Prepare and submit complete detailed OCS shop drawings for all OCS assemblies, components, and equipment, including a tabulated allocation of all parts for the OCS, which is based on the Contract Plans and described in these Specifications. Assemble and submit to the Engineer for acceptance a complete shop drawing package of OCS assembly drawings, OCS component drawings, and OCS sub-assembly drawings. All drawings for load-carrying components must have an indication as to the component's load capacity. Installation torques must be shown for all components that have bolted fasteners.

C. After all of the Engineer's comments on Final Submittal have been addressed and accepted and before the start of construction, the Contractor shall submit for final review and approval by the Engineer the complete set of shop drawing package of OCS assembly drawings, OCS component drawings, and OCS sub-assembly drawings. Fabrication of components shall not proceed until the Engineer has approved the submittal.

1.04 QUALITY ASSURANCE

NOT USED

1.05 ENVIRONMENT

A. Environment: The OCS equipment, hardware assemblies, and components shall be capable of operating satisfactorily in an environment as follows:

1. Classification: Coastal (Marine)
2. Ice Load: None
3. Humidity: 10 to 100 percent
4. Precipitation: 4 inches in 24 hours; 1.5 inches in one hour.
5. Ambient Temperature:
   a. Highest recorded: 115 degree Fahrenheit
   b. Lowest recorded: 15 degree Fahrenheit
   c. Yearly average: 70 degree Fahrenheit
6. Wind:
   a. Pantograph Security Wind Speed: 56 mph
   b. Structural Design Wind Speed: As described in the latest edition of the California Building Code (CBC)
7. Lightning: (Isokeraunic level): 5 per year
8. Conductor Temperature Range: for Constant (Auto) Conductor Tensioning is between 15 degrees Fahrenheit and 130 degrees Fahrenheit:

a. Maximum Conductor Temp: 167 degrees Fahrenheit in normal operation condition.

1.06 DESIGN

A. Design Basis:

1. The basis for the design and construction are as shown on the Contract Plans and described herein. Any deviations from the Contract Plans shall be expressly approved by the Engineer before proceeding with the detailed submittals. The initial submittal documentation shall specifically set forth the relevant design basis to be used in the development of the detail shop drawing submittals.

2. In addition to the other standards referenced in this Section, the OCS design shall comply with CPUC GO 143B, CPUC GO 26, IEEE 1630, and AREMA Chapter 33, Parts 2 and 4.

3. The OCS line insulation configurations shall be double insulated assemblies in accordance with current industry and MTS standards for electrified LRT systems and as required in CPUC General Order 95. Except where otherwise shown on the Contract Plans, OCS insulator assemblies shall be made of porcelain material. Without exception, all insulator assemblies and related hardware shall be of a service proven design, suitable for use on a light rail transit system and have acceptable long-term performance record though their installation and use in similar OCS electrification applications in similar environmental conditions.

4. The transit vehicle and pantograph operating dynamic envelope shall be as shown on the Contract Plans. Train consists of one, two, three, and four cars will operate at speeds up to and including 55 miles per hour (mph). Each car in a train will have a pantograph in service, and each pantograph will exert an average 16 pounds static upward force. The OCS assemblies shall be designed to clear the transit vehicle envelopes and to provide a minimum distance of 3 inches between non-energized portions of the assemblies and the pantograph envelope throughout the catenary system’s operational temperature range. This 3 inch minimum clearance does not apply to registration pipe assemblies; however, the non-energized portions of the registration pipe assembly shall be designed and fitted such that no contact between registration pipe assembly hardware and pantograph will occur when the assembly is properly sized and installed.

5. The nominal operating voltage is 660V DC, plus 20 percent, -minus 30 percent. The no load voltage on the OCS shall not exceed 750 V DC. Individual component insulators and insulated assemblies shall be rated for 750 V DC service, minimum, without exception, and comply with the requirements described in the OCS insulator section of these specifications. Double insulation shall be provided between energized OCS suspension, and the support poles as shown on the Contract Plans and in accordance with CPUC GO 95.

6. Safety factors shall be determined for the worst-case environmental conditions specified above. Except where a law, CPUC General Order, or referenced standard specifies a greater Safety Factor, the minimum safety factors shall be as specified below:

Equipment	**Minimum Safety Factor**
Conductors:	2.0
Strain Insulators:	
Porcelain	2.0
Cast/Molded Synthetic Fiber Resin (where shown on the Contract Plans)	3.0
Cantilever Insulators:	
Porcelain	2.0
Cast/Molded Synthetic Fiber Resin (where shown on the Contract Plans)	3.0
Hardware:	
Ferrous	2.0
Non-ferrous	2.0

7. The electrical performance ratings and characteristics of OCS insulators (excluding nylon thimbles) shall conform to IEC and ANSI industry best practices and quality control test procedures, and meet or exceed the values listed below:

   a. Nominal Operational Voltage: 660 VDC, plus 20 percent, minus 30 percent

   b. Insulation Class: 2KV

   c. Leakage Distance: 1.87 inches (minimum)

   d. Dry/Wet Flashover (at 60 Hz): 25kV/12kV

   e. The nominal vehicle operating voltage is 600V DC, +20%, -30%. The no load voltage on the OCS will not exceed 750 V DC.

8. Insulators shall be designed to minimize the effects of soot and sea salt deposits. Insulators surfaces shall be easily cleaned by wind and rain.

9. Synthetic fiberglass reinforced resin insulators shall be protected from ultraviolet radiation damage by non-conducting ultra-violet screening paint except where the material supplier can prove, from laboratory test results and from demonstration of a minimum of 5 years of use on a light rail transit system with similar sun light exposure to that of San Diego, that the insulating material prevents ultraviolet radiation damage.

B. Details:

1. The Contract Documents include details and specifications where variations will not be accepted (such as assembly configurations, wire, insulator and conductor sizes and types). The Contractor may submit to the Engineer for approval, detailed submittals for equivalent hardware and components of service proven products.

The Engineer will determine based on the information submitted if the hardware and components conform to the applicable requirements and are determined to be equal to or better than the hardware and components specified.

C. Shop Drawing Development:

1. Develop detailed shop drawings for a full arrangement of performance-proven OCS assemblies and components, and demonstrate by means of engineering calculations if necessary, that all elements of the selected system are capable of meeting the performance, safety, and operational requirements as shown on the Contract Plans.

D. Provide detailed shop drawings and related submittals for all OCS equipment, hardware assemblies, and components to include, but not be limited to, the following:

1. All brackets, mounting, and line hardware with insulation (both temporary and permanent);

2. All OCS support and registration assemblies, such as cantilevers, headspans and all related small part steelwork;

3. All disconnect switches, lightning arresters, and related taps to the OCS;

4. All balance weight assemblies and fixed termination assemblies, including the down guy anchor assemblies; and

5. All in-span materials, including hangers, jumpers, section insulators, wire crosses, knuckles, and feeder taps.

E. In developing these OCS shop drawings and related submittals, incorporate the guidelines and standards Shown on the Contract Plans, including engineered configurations shown on the OCS Technical Sheet sheets, the OCS General Arrangement sheets, and the OCS Assembly and detail sheets. See Article 1.03, Submittals, for a detailed description of the submittals that are required to be submitted to the Engineer for approval.

F. The OCS hardware, being all the catenary support and line material from the pole face out to, but excluding, the conductors, shall be developed, configured, sized, and supplied by one manufacturer experienced in the design, development, manufacture, allocation, fabrication, and supply of a major portion of the required OCS hardware.

G. Ensure complete form, fit, and function in the detailed component design of all OCS equipment, hardware assemblies, and related components supplied on this project. Detailed shop drawings shall be prepared for approval by the Engineer, and these drawings shall identify the technical data for the form, fit, and function of the OCS equipment, hardware assemblies, and components. The OCS equipment and hardware suppliers shall have not less than 5 years' direct experience in the engineering and material manufacture of performance-proven OCS equipment, hardware, assemblies, and components used on modern light rail systems in the United States.

H. OCS pole and related pole foundation final designs and site-specific allocations are shown on the Contract Plans. See Section 34 23 39, Metal OCS Poles, for information regarding design and shop drawing requirements for OCS poles.

I. Calculations:

1. Calculations may consist of either computations developed by hand on standard 8-1/2 inches x 11 inches pages or computer-based solutions. Any computer program proposed for use shall be validated by submitting to the Engineer a complete description of the methodology and assumptions that are integral to the program, which must comply with the design basis.

    a. All component selections must be based on the “Working Stress” method. All safety factors will be proportioned to a materials yield stress, or if a material does not exhibit a yield point, the safety factor shall be proportioned to rupture (failure) stress but with an appropriate increase.

    b. All design basis, data, calculations, and design results shall be checked, and bound with a Table of Contents, and the full volume shall bear the seal of a professional engineer registered in the State of California.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

PART 4 – MEASUREMENT AND PAYMENT

NOT USED

END OF SECTION

SECTION 34 23 46
GROUNDING AND BONDING OF OCS ASSEMBLIES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. This Section includes specifications for the grounding and bonding of the Overhead Contact System (OCS).Provide grounding and bonding for all OCS facilities, including the following:

   a. OCS poles installed on cast-in-place concrete foundations shall be bonded to the pole to grounding plate on the foundation through ground wire.

   b. OCS feeder poles installed on cast-in-place concrete foundations shall be bonded to the pole to grounding plate on the foundation through ground wire.

   c. OCS poles installed on embedded anchor bolts on bridge structures and in the trench structure shall be bonded and grounded to a grounding system provided by the structure installer.

   d. Each lightning arrester shall be grounded to an independent ground system (isolated from the OCS pole and drop post support) in accordance with the manufacturer's recommendations and as approved by the Engineer.

B. Section Includes:

1. Grounding and Bonding of OCS Assemblies

C. Related Sections:

1. Section 01 00 00 - General requirements

2. Section 34 21 05 – Traction Power Basic Electrical Materials and Methods

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI)

B. ASTM International (ASTM):

1. ASTM B1 – Standard Specification for Hard-Drawn Copper Wire

2. ASTM B3 – Standard Specification for Soft or Annealed Copper Wire

3. ASTM B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

C. National Fire Protection Association (NFPA):

1. NFPA 70 – National Electrical Code

D. National Electrical Safety Code

E. Underwriters' Laboratories, Inc. (UL):

1. UL 467 – Grounding and Bonding Equipment

F. Institute of Electrical and Electronics Engineers (IEEE):

1. IEEE 80 – Guide for Safety in AC Substation Grounding

2. IEEE 81 – Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Ground System

1.03 SEQUENCING AND SCHEDULING

A. Schedule electrical ground testing as the Work progresses.

1.04 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Test Reports: Reports of all field tests shall be submitted to the Engineer for approval as required by these Specifications and referenced standards, or as necessary to establish compliance with the Contract Plans.

C. Submit product data, certificate of compliance, and installation instructions to the Engineer for all components in this Section.

PART 2 – PRODUCTS

2.01 GENERAL

A. The grounding and bonding systems shall meet the requirements of the National Electrical Code and the technical and safety recommendations of American National Standard Institute (ANSI) and Institute of Electrical and Electronics Engineers (IEEE), including IEEE 80.

B. Provide equipment and tools necessary to conduct testing in accordance with the approved procedures.

C. Meter, gauges and other measuring equipment: Calibrated within six months of the date of each test. Recalibrate equipment on a regular basis during the life of the Contract to continuously meet this requirement.

D. To the degree feasible, use the same testing equipment and test personnel for similar tests during the life of the Contract.

E. Provide marking on wire and cable in accordance with the reference standard. Each item shall have a UL label.

F. Ship each unit securely wrapped, packaged, and labeled for safe handling in shipment and to avoid damage.

G. Store equipment in secure and dry storage facility.

2.02 CONDUCTORS

A. Ground Wire:

1. 4/0 bare, hard drawn copper Class A or B stranded conforming to ASTM B1 or B8.

2. Ground wire for surge arrester grounding shall be 2kV insulated and no less than 4/0.

2.03 CONNECTORS

A. Connectors such as bolts, washers, clamps and stop nuts shall be of a high-copper alloy, such as: Everdur, Durium, Duronze or silicone bronze. Ferrous hardware will not be acceptable.

2.04 GROUND RODS

A. Ground rods shall be be “Copperweld” not less than 3/4 inch in diameter and 10 feet in length. Ground rods shall be driven to a depth so that the top of the rods will be a minimum of 12 inches below grade.

2.05 EXOTHERMIC WELDING MATERIALS

A. All tools, molds and other required materials for exothermic welding shall be manufactured and recommended by one supplier to insure consistent and satisfactory quality of welds.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Grounding conductors shall be copper, of the size shown on the Contract Plans, unless otherwise or specified in these specifications. Except where otherwise shown on the Contract Plans, grounding conductors shall be bare copper. Ground conductor shall be continuous and without splices unless splices are exothermic weld types only.

B. Subgrade grounding connections shall be of the exothermic heavy duty type (i.e., Cadweld), except where otherwise noted on the Contract Plans. Conductors, rods and molds shall be prepared in accordance with the manufacturer’s instructions before making these welds. Brazing may be used where exothermic welds are not practical.

C. All exposed grounding connections between ground conductors and from ground conductors to equipment shall be made by pressure connectors manufactured expressly for the purpose of electrical grounding unless otherwise shown.

D. Ground tap connections to equipment shall be made at the points provided on the equipment for grounding, in accordance with the manufacturers’ recommendations. Where ground taps are not provided, equipment or structures shall be drilled and connections made by means of a ground wire clamp with bolts and nuts, or the equipment or structure shall be drilled and tapped and connected by means of a cap-screw or post-type connector, as approved by the Engineer. All paint, scale, rust, oxidation, or other foreign material shall be thoroughly removed from the points of contact on all metal surfaces before any ground connections are made. Damage to surfaces shall be repaired using appropriate approved repair methods and materials.

E. Metallic conduit systems, whether embedded or exposed, shall be electrically continuous and thoroughly grounded. Wherever expansion or slip joints are used, suitable bonding shall be provided around the joint to insure a continuous ground circuit. Metallic boxes shall also be grounded to the bonding conductor, preferably by compression-type terminals bolted to boxes, unless the conduit connections to the box are threaded and the grounding conductor is brazed to the box. Screwed and brazed joints shall be carefully painted with bituminous paint.

F. The grounding system for each lightning arrester that is pole mounted on the Overhead Contact System (OCS) shall consist of independent ground rod(s) (isolated from the OCS pole), with a ground resistance and electrical arrangement as required by the lightning arrester manufacturer and with the Engineer's approval.

G. Poles on aerial structures shall be grounded as shown on the Contract Plans.

H. When shown on the Contract Plans, grounding of bridge under deck attachments shall be accomplished by connecting the attachment to a ground embedded in the trackbed right of way. Connecting wire shall be neatly trained and fastened along the under deck and walls.

3.02 FIELD TESTING

A. Field testing shall be thorough, complete and performed throughout the installation. Notify the Engineer 48 hours in advance of testing. Fully document the following as a minimum through formal shop drawing and test submittals for approval by the Engineer:

1. Electrical resistance tests shall be made for each ground system installation to verify continuity and compliance with specified resistances.

2. Measure, record and report the resistance to earth of each portion of the grounding system after installation so that corrective measures, if required, may be made with minimum disruption to construction. All required ground resistances shall be equal to or less than the following values:

a. OCS pole/foundation grounds: 10 ohms or less. Where high resistance soils at specific sites do not permit a 10 ohms resistance to be achieved utilizing a single ground rod, additional ground rods shall be installed until the ground lead resistance is not more than 25 ohms.

b. OCS pole/foundations that are supported on a structure (i.e., bridge, trench): 10 ohms or less.

c. OCS pole/foundations with disconnect switch locations: 5 ohms or less.

d. Lightning Arresters: As recommended by arrester manufacturer, but not greater than 5 ohms.

B. Resistance-to-earth tests shall be witnessed by the Engineer and the Contractor's Quality Control and the written results of these tests shall be submitted to the Engineer for approval. Any tests conducted without witnessing shall be deemed invalid and will not be accepted.

C. Ground resistance tests shall be made with a MeterCenter Model 250220, Heavy-Duty, Megger Insulation Tester, or approved equal, using the three-probe method described in IEEE Standard 81.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Grounding as specified in this section shall be included in the contract item price paid for OCS Pole Foundations, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 49
OCS SUPPORTING DEVICES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. This Section includes specifications for the design, manufacture, supply, and installation of the following types of Overhead Contact System (OCS) support and registration assemblies for the OCS, as shown on the Contract Plans and specified herein.

2. All OCS supporting devices required at new or modified structure locations shall be new.

3. Design, fabricate, furnish, and install all applicable cantilever assemblies for supporting the overhead wires. The cantilevers shall be installed where shown on the Contract Plans.

4. Design, fabricate, furnish, and install all applicable messenger, contact, aerial head guy and registration assemblies where shown on the Contract Plans.

B. Section Includes:

1. Pull-Off/Push-Off Single-Track and Back-to-Back Cantilevers

2. Non-Riding and Support-Only Single-Track and Back-to-Back Cantilevers

3. Twin Cantilevers

4. Registration Assemblies

5. Aerial Head Guy Supports

C. Related Sections:

1. Section 01 00 00 – General requirements

2. Section 34 23 43 – OCS Design Requirements

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A36 – Standard Specification for Carbon Structural Steel

2. ASTM A47 – Standard Specification for Ferritic Malleable Iron Castings

3. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

4. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

5. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

6. ASTM A484 – Standard Specification for General Requirements for Stainless Steel Bars, Billets, and Forgings

7. ASTM A588 – Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi (345 MPa) Minimum Yield Point, with Atmospheric Corrosion Resistance

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Certification: Furnish certifications to the Engineer verifying that all materials included in the OCS support assemblies have been manufactured, inspected, and tested in accordance with the approved shop drawings and component drawings.

C. Test Reports: Furnish copies of reports of all factory tests required by the Contract Plans and these Specifications to the Engineer.

D. Manufacturer's Data: Furnish complete manufacturer's data to the Engineer. Furnish supporting calculations to the Engineer for each component to demonstrate adequate load capacity of each item in the OCS support assembly configuration.

E. Shop Drawings: Furnish shop drawings to the Engineer for all OCS supporting devices proposed for use on this project, as specified in Section 34 23 43, OCS Design Requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

A. All OCS support and registration assemblies, components, and materials shall be protected against damage during handling and shipping, storage, and installation.

B. Deliver the OCS support assemblies to the site at intervals to ensure uninterrupted progress of the Work.

C. Store material to permit easy access for inspection and identification. Protect steel members and packaged materials from corrosion and deterioration.

D. All packaged components and/or assemblies shall have a strong waterproof tag securely fastened to the package showing the assembly or component name, number, or identification code.

E. Packaging and/or packing methods of all assemblies or components shall be subject to approval by the Engineer.

PART 2 – PRODUCTS

2.01 MATERIALS

A. All materials used in the components of the OCS support and registration assemblies shall be of sufficient strength and durability to withstand the applicable worst-case loads with the addition of a factor of safety specified in Section 34 23 43, OCS Design Requirements.

B. Materials shall be light in weight and reliable to ensure safe performance during component and assembly performance life.

C. The OCS support and registration assemblies shall be of proven and tested design, and shall have successfully been used on other overhead electrified light rail systems for a minimum of 5 years.

D. Furnish all labor, tools, equipment, apparatus and facilities as required to perform all fabrication and installation work as required.

E. Metal parts touching messenger or contact copper wire shall be made of bronze or bronze alloy material, except where another material is shown on the Contract Plans or specified in these specifications. Messenger wire hanger clip or strap assemblies may be constructed of SAE 316 stainless steel.

2.02 METAL CHARACTERISTICS

A. Malleable Iron: Fittings or components made of malleable iron shall be grade 32510 or better and shall conform to ASTM A47. All components and fittings shall be galvanized in accordance with ASTM A153.

B. Structural Steel: Material for structural steel (not including cantilever pipe) shall comply with ASTM A36 or A588. A36 material must be galvanized in accordance with ASTM A123.

C. Cantilever Pipe: Material for all cantilever pipe or tubes shall comply with ASTM A53, Type S (seamless), Grade B, Schedule 40 or 80, or heavier wall as required, galvanized.

D. Stainless Steel: Marine grade (SAE 316 or approved equivalent grade) Stainless Steel material shall conform to ASTM A484.

E. All cotter pins, roll pins, spring clips, and hitch pins shall be constructed of marine grade (SAE 316 or approved equivalent grade) stainless steel.

F. Hot dipped galvanized structural steel for miscellaneous devices shall conform to ASTM A36 or ASTM A588 generally conforming to the structure receiving the attachment, or as directed by the Engineer.

PART 3 – EXECUTION

3.01 INSTALLATION

A. All OCS supporting devices including steady arms, messenger supports and cross-span or wire pull-off/backbone registration assemblies shall be installed as shown on the Contract Plans and approved shop drawings.

B. All connections, bolts, and nuts shall be properly torqued in accordance with the torques shown on the approved shop drawings and component drawings.

C. All items shall be inspected for form, function and fit, including damaged coatings or bent/kinked members. Any piece found to be defective shall be rejected and a replacement shall be installed.

D. Cantilever assemblies shall be installed as shown on the approved shop drawings. Unless an alternative method of measurement and cantilever sizing is approved by the Engineer in writing (such as, surveying center of pole foundations, calculating the offset distance from centerline of track, and deducting half the pole diameter at point of attachment), field

measurements shall be taken after the track is in its final position and prior to cantilever fabrication, to determine the as-built dimension from centerline of track to face-of-pole at either contact wire height or messenger wire height.

E. If necessary for stability during stringing, the cantilevers shall be temporarily restrained to prevent collapse due to swinging. The details of the temporary restraints shall be submitted to the Engineer for approval.

F. Cotter pins and nuts on each cantilever shall be located on the same side of the structure to assure uniformity along the line and ease of maintenance.

G. Assemblies fitted with pins, cotters, bolts and nuts shall be oriented where possible in such a manner as to lock these components together by gravity if the pins or nuts should, for some reason, become detached under service conditions.

H. Components employing a hinge or swivel shall be lubricated in accordance with manufacturer recommendations with a manufacturer recommended grease before assembly of the rubbing surfaces.

I. After installation of cantilevers and final stringing of conductors, support assembly component adjustment must be possible for setting of the final wire stagger, steady arm heel setting, contact and messenger wire height, and cantilever inclination, so that the OCS alignment is within the specified design tolerances.

J. The top pipe of cantilever assemblies shall be level after loading as shown on the Contract Plans, unless otherwise approved by the Engineer for specific locations. Cantilever assemblies supporting overlap catenary suspension may have the top pipes tilted as shown on the Contract Plans or be supported off of Schedule 80 vertical tubing mounted on the spreader brackets and have the cantilever top pipe set horizontal. If overlap cantilevers are tilted, then tilt one up and one down so they both slope approximately the same amount.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Supporting Devices as specified in this section shall be considered included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 53
OCS GALVANIZED STEEL WIRE

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes manufacture, supply, and installation of all grades of galvanized steel wire, wire-strand terminations, wire assemblies for use with down guys and aerial head guys for the Overhead Contact System (OCS), as shown on the Contract Plans and as specified herein.

B. Section Includes:

1. Galvanized Steel Wire

C. Related Sections:

1. Section 01 00 00 – General Requirements
2. Section 34 23 86 – OCS Manuals and Training

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A475 – Standard Specification for Zinc-Coated Steel Wire Strand

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit copies of manufacturer's data sheets and related reports for each type of wire to be used containing the physical and mechanical properties of all components described in this Section. The conformance of components with the requirements of the Contract Plans and these Specifications shall be in the form of a manufacturer's certification. Include the following as a minimum:

1. Size
2. Type
3. Material
4. Number of and diameter of individual wires
5. Overall diameter
6. Cross-section area
7. Weight per foot
8. Rated breaking strength
9. Zinc coating weight

10. Project use and product application data

11. Material certification

C. Operation (installation) and maintenance manuals shall be submitted for all down guys, head guy strands, and specialized wire-strand terminations, in accordance with Section 34 23 86, OCS Manuals and Training.

1.04 CERTIFICATION

A. Provide certification that the galvanized steel wire have been designed, fabricated, rated and tested in compliance with the applicable provisions of the standards referenced in these Specifications.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be protected against damage in ordinary handling and shipping. Each reel shall have a strong, weatherproof tag securely fastened to it showing the physical and mechanical properties as well as the steel type designation, ASTM designation, and the name and mark of the manufacturer.

PART 2 – PRODUCTS

2.01 DESCRIPTION

A. Components: The zinc-coated stranded wire shall be manufactured and tested in accordance with ASTM A475.

B. Performance: Physical properties of the zinc-coated stranded wire shall conform to the description in Table 1 of ASTM A475.

C. Materials: The material used for stranded steel wire and wire components shall conform to ASTM A475.

D. Zinc Coating: The weight of coating for zinc-coated steel wire shall not be less than that specified in Table 4, under Class C of ASTM A475.

2.02 WIRE USAGE

A. Galvanized stranded steel wire shall be used in the following applications:

1. Head Guys, Down Guys, and Termination Wire: 1/2–inch 1x7 EHS construction.

2. Head span and pull-off: 3/8-inch 1x7 EHS construction.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. Galvanized steel wire shall be cut and installed using tools and methods specified by the manufacturer.

B. Splicing of the galvanized steel wire will not be permitted under any circumstances.

3.02 INSTALLATION OF HEADSPAN ASSEMBLIES

A. Review and note all field changes from the Contract Plans, and submit these changes together with recommendations to the Engineer.

B. Wire sizes, locations of turnbuckles, insulators, suspension assemblies, and hangers for the OCS shall be installed in accordance with the OCS hardware approved shop drawings.

3.03 INSTALLATION OF DOWN GUYS AND AERIAL HEAD GUYS

A. Down guys and aerial head guys shall be installed before the catenary wires are installed. They shall be pulled taut and secured in place with provisions for future adjustment as required to support the OCS structure in proper alignment after the catenary wires are installed to their final configuration and tensions.

B. Install down guy and aerial head guy terminations and attachments as recommended by the manufacturer.

C. Install guy guards as shown on the Contract Plans, or as deemed necessary in the field by the Engineer, to protect the public and MTS maintenance workers from any potential danger imposed by the guy wires.

D. Make all final adjustments necessary to the down guys and aerial head guys to compensate for initial stretch to insure the proper long-term support and alignment of the catenary wires.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Galvanized Steel Wire as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 56
OCS STAINLESS STEEL WIRE ROPE

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes supply and installation of stainless steel wire rope for the Overhead Contact System (OCS), as shown on the Contract Plans and as specified herein.

2. The stainless steel wire rope shall be suitable for the uses as shown, providing for a usable and maintainable wire arrangement.

B. Section Includes:

1. Stainless Steel Wire Rope

C. Related Sections:

1. Section 01 00 00 –General Requirements

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A368 – Standard Specification for Stainless Steel Wire Strand

2. ASTM A492 – Standard Specification for Stainless Steel Rope Wire

3. ASTM A555 – Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods

4. ASTM A580 – Standard Specification for Stainless Steel Wire

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Certification: Furnish six copies of certifications to the Engineer verifying that the stainless steel wire rope have been designed, manufactured, inspected, and tested in accordance with the referenced standards and these Specifications.

C. Test Reports: Furnish six copies of copies of reports of all factory tests as required by these Specifications and referenced standards.

D. Manufacturer’s Data: Furnish six copies of complete manufacturer’s data and technical description.

E. Project Use: Furnish complete size and application data for all types of stainless steel wire rope used for the OCS configurations, and identify for all assembly applications proposed.

1.04 DELIVERY, STORAGE, AND HANDLING:

A. The wire rope shall be shipped on reels suitable for the weight carried.

B. All material shall be protected against damage during handling and shipping. Each reel or bundle shall have a strong, weatherproof tag securely fastened showing the physical and mechanical properties, as well as type designation, ASTM designation, the name and mark of the manufacturer, and the total length and weight of the wire rope.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General:

1. Austenitic grade stainless steel.
2. High corrosion resistance in a marine environment (SAE 316 or approved equivalent).
3. Compatible with component items.
4. Capable of carrying maximum working loads with a factor of safety of 2.5 minimum based on yield stress.

B. Stainless Steel Wire Rope:

1. Extra flexible.
2. Manufactured and tested in conformance with requirements of ASTM A368, A492, A555 and A580.

2.02 TYPES

A. Stainless steel wire rope shall be of the following types:

1. Balance Weight Support Cables: 1/2-inch diameter, 6x25 stainless steel construction, 22,200 lbs. breaking strength, grade 302/304.
2. Catenary Assembly Hanger, and Standard Hangers: 3/16-inch stainless steel wire rope 7x19 aircraft cable, 2,900 lbs breaking strength, grade 316.
3. Safety Catch: 3/8-inch diameter, 7x19 construction, 12,000 lbs. breaking strength, grade 302/304.
4. Head Span Hanger and Section Insulator Hanger: 1/4-inch stainless steel wire rope, 7x19 aircraft cable, 4,900 lbs breaking strength, grade 316.

2.03 FABRICATION

A. Hanger lengths shall be fabricated to allow for field adjustment.

B. All material must be suitable for field adjustment.

C. Installation of wire rope shall be as shown in the approved OCS hardware shop drawings.

D. Follow Manufacturer's instructions for field cutting of Non-Rotational wire rope. "Strandvise" or "Automatics" shall not be used on wire rope.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Field adjustments of hangers, messenger and contact wire heights shall be performed as necessary, to maintain the OCS in compliance with the Contract Plans.

B. Wire stagger, wire height, and heel settings shall be as shown on the Contract Plans or as directed by the Engineer.

C. Hangers shall be spaced (in the along-track direction) as shown within a tolerance of plus or minus 6 inches.

D. No damage shall occur to the interfacing components during installation.

E. Hangers shall be reset to a vertical or plumb as a final position.

F. Wire rope clips "Crosbys" shall not be left as a final installation of hangers; all wire rope shall be crimped. Contact Wire height above top or rail in all areas shall be that shown at the adjacent supports, except in areas where the contact wire is transitioning from one height to another. In transition areas the contact wire shall smoothly transition from the one wire height to the other.

G. Compression sleeves must be pressed with the manufacturer approved dies and tooling. The number of crimps will be based on the type of die being utilized per manufacturer's approved recommendation. All hydraulic and battery-operated tools to include the type of die and number of crimps for each type of wire rope must be submitted for review and approved by the project engineer. All tools must be calibrated prior to each use.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Stainless Steel Wire Rope as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 59
OCS LIGHTNING ARRESTERS

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes manufacture, supply, and installation of lightning arresters for the Overhead Contact System (OCS), as shown on the Contract Plans and specified herein.

2. Prepare detailed shop drawings for each of the required assemblies.

B. Section Includes:

1. OCS Lightning Arresters

C. Related Sections:

1. Section 01 00 00 – General Requirements

2. Section 34 23 43 – OCS Design Requirements

3. Section 34 23 46 – Grounding and Bonding of OCS Assemblies

1.02 REFERENCE STANDARDS

A. Institute of Electrical and Electronics Engineers (IEEE):

1. IEEE 62.11 – Standard for Metal-Oxide Surge Arresters for AC Power Circuits (>1 kV)

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. The following submittals shall be made prior to order and fabrication:

1. Complete manufacturer's descriptions, catalog data, and information, including model number and electrical performance ratings and data.

2. Manufacturer's shop drawings, as detailed in Section 34 23 43, OCS Design Requirements, and installation instructions, including specific grounding recommendations and required resistance to earth/ground.

3. Shop drawings shall show the schematic wiring and interconnection diagrams.

4. Shop drawings for the lightning arrester assemblies shall be subject to approval by the Engineer.

PART 2 – PRODUCTS

2.01 LIGHTNING ARRESTERS

A. Lightning arresters shall be installed as shown on the Contract Plans, and:

1. At each catenary feeder pole that contains traction power feeder cable(s) to OCS connection(s).

2. Lightning arresters shall not be located over station platforms.

B. Lightning arresters shall be of the metal oxide varistor (MOV) type, outdoor style, intermediate class, and shall be designed, constructed and tested in accordance with the general requirements of IEEE C62.11. Lightning arresters shall be made of ultraviolet light resistant material.

C. Each lightning arrester shall have an energy discharge capability of no less than 2.6KJ and rated for continuous service at 1,000 VDC for current 500A or less with 1280 Maximum Continuous Operating Voltage (MCOV).

D. The lightning arresters shall be rated to withstand normal operating line transients of up to 5000 V DC of either polarity to ground. They shall conduct surges due to lightning strikes, and shall also block follow-through current from the substation rectifiers.

E. Each lightning arrester shall incorporate an individual grounding system as shown on the Contract Plans, which must be connected to an independent ground rod or ground mat, electrically separate from the OCS pole ground, or any other structure grounding system.

F. Each grounding connection shall have a grounding resistance as recommended by the lightning arrester manufacturer, but not greater than 5 ohms, for the type of unit supplied. Each location shall achieve the required grounding resistance recommended by the arrester manufacturer without additional costs.

G. The lightning arrester grounding arrangements shall be tested and approved in accordance with the testing procedures specified in Section 34 23 46, Grounding and Bonding of OCS Assemblies.

H. Each lightning arrester shall be bonded to the grounding system by a 4/0 AWG Copper wire (unless larger size wire is specified by the lightning arrester manufacture) with a minimum 2000V-rated insulation.

I. Bonding cable connections between the lightning arresters and the OCS, and between the lightning arresters and the grounding system, shall be installed in a manner that minimizes the number of bends.

J. Bonding connections between the lightning arresters and the grounding systems shall be of the exothermic weld type.

K. Refer to Section 34 23 46, Grounding and Bonding of OCS Assemblies, for general requirements on grounding and bonding connections.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install lightning arresters at locations as specified in Article 2.01.

B. Install lightning arresters as shown on the approved OCS shop drawings.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Lightning Arrestors as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 63
OCS INSULATOR

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes design, manufacture, supply, and installation of insulators for the Overhead Contact System (OCS), as shown on the Contract Plans and specified herein.

2. Insulators shall conform to the requirements described in Section 34 23 43, OCS Design Requirements, of these specifications.

3. All contact wire “riding-type” insulators for use on section insulator assemblies are specified separately in Section 34 23 66, OCS Section Insulator Assemblies.

B. Section Includes:

1. Cantilever Pipe, Pin and Nose Cap Insulators

2. Messenger Wire Support Insulators

3. Messenger Wire In-Span and Termination Insulators

4. Contact Wire In-Span and Termination Insulators

5. Contact Wire Insulators

6. Feeder Line-Post and Termination Insulators

7. Aerial Head Guy Wire Insulators

8. Other Miscellaneous Insulators (as shown on Contract Plans)

C. Related Sections:

1. Section 01 00 00 – General Requirements

2. Section 34 23 43 – OCS Design Requirements

3. Section 34 23 66 – OCS Section Insulator Assemblies

4. Section 34 23 80 – Overhead Contact System Installation

1.02 REFERENCE STANDARDS

A. American National Standard Institute (ANSI):

1. ANSI/NEMA C29.1 – Test Methods For Electrical Power Insulators

B. ASTM International (ASTM):

1. ASTM A47 – Standard Specification for Ferritic Malleable Iron Castings

2. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

3. ASTM C150 –Standard Specification for Portland Cement
4. ASTM C151 – Standard Test Method for Autoclave Expansion of Hydraulic Cement
5. ASTM D116 – Standard Test Methods for Vitrified Ceramic Materials for Electrical Applications

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit Shop Drawings to the Engineer for review and approval prior to insulator manufacture, as detailed in Section 34 23 43, OCS Design Requirements, showing details and dimensions of the insulating and metallic parts, describing the material composing the various parts, together with technical, mechanical, and electrical characteristics and performance data.

C. Prepare and submit to the Engineer an insulator device (assembly) loading table to indicate the maximum design loading condition that each type of insulator can safely withstand.

D. Submit to the Engineer for approval details of the factory tests proposed for each type of insulator and the procedures and forms to be used during the factory tests and inspection.

E. Certification:

1. At the request of the Engineer provide certificates of compliance for the following:
    a. Steel analysis
    b. Hot dip galvanizing
    c. Adhesive materials
    d. Insulator materials
    e. In-service performance record of proposed insulators
    f. Certified Quality Control Procedures used in the manufacturing process

F. Data to be furnished to the Engineer prior to insulator installation:

1. Storage, handling, and installation instructions.
2. Details of any specifications for materials included in the insulator assembly that are not covered in the Contract Plans or specified in these specifications.

G. The Engineer shall be notified at least two weeks in advance of the date the insulators will be ready for inspection and tests.

H. Submit samples to the Engineer of each type of insulator to be used on the project.

I. The insulators shall be substantially maintenance free. If the manufacturer/supplier recommends specific maintenance procedures and service data, they shall be submitted and approved by the Engineer prior to the manufacture and supply of all insulators.

1.04 QUALITY ASSURANCE

A. Factory Quality Control: Factory tests shall be made as required by these Specifications and the referenced standards. Test reports shall be submitted as detailed herein.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Ensure that all materials furnished are suitably packaged and protected against damage during delivery and transportation.

B. Store all products in accordance with the manufacturer's instructions to ensure that all material is protected from damage and exposure.

C. Handle and otherwise use the insulators in accordance with the manufacturer's instructions so as to ensure that the products are not damaged or misused prior to or during installation.

D. In case of damage to the insulators, all repairs and replacements shall be accomplished in accordance with the manufacturer's instructions to the satisfaction of the Engineer.

PART 2 – PRODUCTS

2.01 DESCRIPTION

A. The OCS insulators shall comply with the General Orders of the State of California Public Utilities Commission (CPUC), particularly the requirement for double insulation. All insulators shall clear the pantograph dynamic envelope.

B. Porcelain insulators shall be used unless otherwise shown on the Contract Plans. Synthetic insulators are acceptable if shown on the Contract Plans or approved by the Engineer.

C. Minimum safety factors shall be determined for the worst-case conditions over the ambient temperature range and wind pressure specified in Section 34 23 43, OCS Design Requirements. Except where a law, CPUC General Order, or referenced standard specifies a greater Safety Factor, the minimum safety factors are as specified below:

Equipment	**Minimum Safety Factor**
Strain Insulators:	
Porcelain	2.0
Cast/Molded Synthetic Fiber Resin (where shown on the plans)	3.0
Cantilever Insulators:	
Porcelain	2.0
Cast/Molded Synthetic Fiber Resin (where shown on the plans)	3.0
Hardware:	
Ferrous	2.0
Non-ferrous	2.0

D. Synthetic fiberglass reinforced resin insulators shall be protected from ultraviolet radiation damage by non-conducting ultra-violet screening paint except where the material supplier can prove from laboratory test results and demonstration of a minimum of 5 years of use on a light rail transit system with similar sun light exposure to that of San Diego that the insulating material prevents ultraviolet radiation damage.

E. Synthetic fiberglass reinforced resin insulators shall be protected from ultraviolet radiation damage by non-conducting ultra-violet screening paint except where the material supplier can prove via laboratory test results and via demonstration of a minimum of 5 years of use on a light rail transit system with similar sun light exposure to that of San Diego that the insulating material prevents ultraviolet radiation damage.

F. The insulators covered by these specifications are for use in the following applications:

1. OCS Insulators:

a. Cantilever Pipe Insulators: Insulation of the cantilever assembly pipe/tube frames, mounted to the poles shall be manufactured from porcelain standoff insulator, as shown on the approved OCS hardware shop drawings.

b. Messenger Wire Support, In-Span and Termination Insulators: The vertical and horizontal support, cut-in (tension) and termination (strain) of the main messenger wire which supports the OCS hangers and contact wire shall be manufactured from porcelain interlocking strain (JB type) insulator, as shown on the approved OCS hardware shop drawings.

c. Contact Wire Support, In-Span and Termination Insulators: The vertical and horizontal support, cut-in (tension) and termination (strain) of the grooved contact wire for the Overhead Contact System shall be

manufactured from porcelain interlocking strain (JB type) insulator, as shown on the approved OCS hardware shop drawings.

d. Contact Wire Non-Riding Insulators: The horizontal insulation of the grooved contact wire as a cut-in (tension) member used in-span overlaps where uplift may cause the pantograph to hit a normal insulator shall be manufactured from porcelain interlocking strain (JB type) insulator, as shown on the approved OCS hardware shop drawings.

e. Aerial Head Guy, Termination and In-Span Insulators: The horizontal insulation of the span wires shall be manufactured from porcelain interlocking strain (JB type) insulator, as shown on the approved OCS hardware shop drawings.

2.02 PORCELAIN INSULATORS

A. The insulators shall be made of the best commercial-grade wet-process porcelain, in accordance with ASTM D116.

B. The entire porcelain surface of the insulators that will be exposed after assembly shall be glazed in No. 70 light gray color.

C. The surface shall be free of imperfections. Pieces with imperfections in the glaze repaired by re-coating and refiring and pieces repaired by re-touching with paint will be rejected.

2.03 METAL PARTS

A. The metal parts of the insulators shall be made of malleable iron, Grade 35018, to conform to ASTM A47, or open-hearth or electric furnace steel. All ferrous metal parts shall be galvanized in accordance with ASTM A153. Insulator fittings shall provide for connections as shown.

2.04 CEMENTING

A. Cement used for assembling porcelain to metal shall meet or exceed the requirements of ASTM C150 and C151.

B. Cement for synthetic insulators shall be of the types recommended by the insulator manufacturer for use with his materials.

C. Hardware which is in contact with cement shall be coated with a bituminous paint to protect the galvanizing from harmful chemical action of the cement or shall be coated as recommended by the insulator manufacturer.

2.05 SPECIFIC REQUIREMENTS

A. Contractor and OCS supplier shall provide acceptable service proven porcelain non-riding type insulators for use within the catenary messenger and contact wire in-span OCS arrangement. All insulator arrangement and components shall be subject to the approval of the Engineer. Fiberglass rod-type, strain insulator for in-span, tension-type catenary wire insulation will not be accepted.

B. All insulators shall include the fittings and connections for attachment to the pipe, pole or steelwork, as shown.

C. The insulator shall be suitable for both horizontal and vertical mounting and installation, unless otherwise specified.

D. The insulators shall be formed to fit the specified conductors as shown on the Approved OCS hardware shop drawings.

2.06 TECHNICAL CHARACTERISTICS AND DIMENSIONS

A. Technical characteristics of the insulators shall be as shown on the Contract Plans and specified herein.

B. Insulator shall meet or exceed the minimum Insulator Characteristics listed below:

1. Nominal Voltage: 750V DC
2. Insulation class: 2 kV
3. Basic Impulse Level (BIL): 3.7 kV AC, Root-Mean-Square (RMS)
4. Leakage Distance: 1.87 inches (min)
5. Dry Flashover: 25 kV
6. Wet Flashover: 12 kV

2.07 MARKING

A. Each insulator shall bear the manufacturer's name or trademark and year of manufacture, clearly and permanently imprinted or attached without leaving any irregularity that would affect the electrical and mechanical performance of the insulator.

2.08 PRODUCTION TESTS AND FABRICATION

A. The following tests shall be performed in accordance with NEMA C29.1:

1. Visual and Dimension Test:
    a. The entire surface shall be smooth and free from defects.
    b. If adhesives are used, the insulator shall be inspected to see that the fillet of adhesive provides a complete seal between the coating and end fitting.
    c. The insulator shall be inspected to verify that both end fittings are in line after being assembled.
    d. The insulator shall be in accordance with approved shop drawings and these specifications.
2. Routine Flashover: A sampling of not less than 5 percent of each type of insulator shall be subjected to a flashover test in accordance with NEMA C29.1. For this test, an electrode shall be placed at each side of, and adjacent to, the non-ceramic barrier. Should any test specimen fail, all insulators in the production batch of that specimen are subject to rejection. Alternatively, each insulator in the batch may be tested. Any insulators that puncture will be cause to have the insulator design rejected.
3. Proof Test: All insulators types shall be subject to a mechanical strength proof test. The insulators shall be tested at room temperature for ten seconds to 120 percent

of the designed tensile, compressive or bending load. Failure shall constitute rejection.

PART 3 – EXECUTION

3.01 INSTALLATION

A. The insulators shall be installed in accordance with the approved OCS hardware shop drawings, and as specified in Section 34 23 80, Overhead Contact System Installation.

B. All tests shall be completed, with all test reports subsequently submitted and accepted by the Engineer prior to shipment of any insulators to the jobsite.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Insulators as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 66
OCS SECTION INSULATOR ASSEMBLIES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes design, manufacture, supply, installation, and testing of section insulator assemblies for the Overhead Contact System, as shown on the Contract Plans and specified herein. Section insulator assemblies shall be service-proven units.

B. Section Includes:

1. OCS Section Insulator assemblies

C. Related Sections:

1. Section 01 00 00 –General Requirements
2. Section 34 23 43 – OCS Design Requirements
3. Section 34 23 63 – OCS Insulators
4. Section 34 23 86 – OCS Manuals and Training

1.02 REFERENCE STANDARDS

A. Codes and Standards: Pertinent Provisions of the latest revision of applicable NEMA, IEEE, and ANSI Standards shall apply to the work of this Section, except as they may be modified herein, and are hereby made a part of this Specification to the extent required.

B. ASTM International (ASTM):

1. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit shop drawings to the Engineer for review and approval prior to insulator manufacture, as detailed in Section 34 23 43, OCS Design Requirements, showing details and dimensions of the insulating and metallic parts, describing the material composing the various parts, together with technical, mechanical, and electrical characteristics and performance data. All materials shall conform to the requirements described in Section 34 23 43, OCS Design Requirements, except otherwise specified herein.

C. Furnish the following information to the Engineer for approval prior to fabrication:

1. Insulators:

a. Electrical:

1) Creepage length (inches)

2) Insulation level (impulse withstand test voltage, kV)

3) DC test voltage (kV)

b. Mechanical:

1) Attachment centers and overall length (inches)

2) Shed diameters (inches)

3) Core diameters (inches)

4) Breakdown of weights, insulator, and fittings (pounds)

5) Tensile test withstand breaking load (pounds)

6) Recommended maximum working tensile load (pounds)

7) Material (including end caps and touch-up insulator sealants)

2. Manufacturer's design safety factors.

3. Shop drawings of hardware and components, as detailed in Section 34 23 43, OCS Design Requirements.

4. Listing and description of components and hardware.

5. Shop drawings and installation instructions required for field forming and setting of contact wire into mating items, including gliders.

6. For assemblies, list values of BIL, ultimate tensile strengths, ultimate torsional strength, weights (including weight of components), maximum speed rating, and electrical characteristics.

D. Operation and Maintenance Manual: O&M Manuals shall be furnished covering complete instructions for the section insulator installation, operation, maintenance, and testing. A complete replacement parts lists shall be included. All manuals shall be in accordance with Section 34 23 86, OCS Manuals and Training.

E. Test Reports: Reports of the following factory tests shall be furnished:

1. Proto-type tests

2. Production tests

F. Submit full information, with supporting documentation, on the in-service performance history of the proposed section insulators as shown on the Contract Plans and in accordance with these Specifications.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Ensure that all section insulator materials are suitably protected against damage during transport, handling, and storage.

B. Store all products in accordance with the manufacturer's instructions to ensure that all material is protected from damage and exposure.

C. Handle and otherwise use the section insulators in accordance with the manufacturer's instructions so as to ensure that the products are not damaged or misused prior to or during installation.

D. All required repairs and replacements will be accomplished in accordance with the manufacturer's instructions.

PART 2 – PRODUCTS

2.01 DESIGN CRITERIA

A. The section insulators shall be suitable for use in all styles and configurations of the Overhead Contact System. The section insulator shall be designed to remain stable (dynamically and structurally) under sustained crosswinds of up to 56 mph and withstand maximum crosswinds of 65 mph without failure, including permanent deformation.

B. The section insulators shall be capable of continuous operation at the nominal catenary voltage of 750V DC and no-load voltage of 900V DC under all operational weather conditions specified for the project area. The section insulators shall be tested for dry flashover, wet flashover, low frequency, dry and wet withstand, and impulse withstand tests. Electrical criteria shall be the same as for other insulators on the project, as stated in Section 34 23 63, OCS Insulators.

C. Assembly and component parts shall be designed for ease of adjustment, maintenance, replacement, assembly, and disassembly with a minimum of specialized tools. Component parts shall be identified for this purpose.

D. The messenger insulator shall be a porcelain (Johnny Ball) insulator, except where otherwise shown on the Contract Plans, and shall be 2 kV class insulation.

E. The contact wire insulator shall be porcelain (Johnny Ball) insulator, except where otherwise shown on the Contract Plans, and shall be 2 kV class insulation.

F. Stabilizing hangers (with suitable means of field adjustment) shall be provided from the messenger to the section insulator to restrict the rotational movement of the section insulator and to ensure correct alignment of the runners with respect to the pantograph.

G. The interface and connection of the contact wire insulator to the runners shall be designed so as to permit a smooth riding path without pantograph carbon damage and dynamic collector bounce. The mass of the connection and the skids shall be as small as possible. The skids shall be field adjustable to achieve alignment with the pantograph and the contact wire.

H. The spacing of the runners on the section insulator shall be such that both sides are always in contact with the working portion of the pantograph.

I. The insulators and their end fittings shall be designed for the maximum working tensions of the conductors as shown. A factor of safety of 2.5 minimum shall be used for all components of the section insulator.

J. All components, particularly those associated with the contact wire, shall be as lightweight as possible.

K. The insulators should be capable of operating with multiple pantograph passes at speeds of from zero (0) to a maximum of 65 miles per hour, without sustaining damage or causing OCS operational problems.

L. The design shall ensure electrical separation between catenary wires of adjacent sections is maintained at all times, electrically isolating one section from the other.

M. The section insulator shall be positioned as shown on the Contract Plans, with the central point close to the centerline of a static pantograph. The offset of the unit shall be within limits approved by the Engineer.

N. Pantographs drawing current while traversing the section insulator shall not cause excessive arcing or damage to the Section Insulator or pantograph.

O. The design shall allow for torsional forces resulting from the passage of multiple pantographs combined with lateral wind loads at service speed.

P. The design shall satisfy the environmental conditions as given in Section 34 23 43, OCS Design Requirements.

Q. The design shall provide full performance within a conductor temperature range of 15 to 130 degrees Fahrenheit.

2.02 MANUFACTURER

A. The section insulator assembly to be installed for all simple catenary as indicted on the plans shall be model number 0135/05/J-148/17 with 0135/05/J-146/17 (Items 25a/II and 201/VII) by Transit Innovations, LLC, or approved equal, and shall include messenger insulating assembly consisting of porcelain strain insulators, strand vises, and dead-end clamps for the messenger wires, and adjustable hangers supporting the section insulator assembly from the messenger wire insulating assembly. The details and arrangement of the section insulator assembly are shown on the plans.

B. The section insulator shall be supplied by the manufacturer complete in all respects suitable for installation. The Contractor shall provide acceptable, service proven porcelain non-riding type insulators for use within the OCS messenger and contact wire in-span tension-type (strain) OCS arrangements. The porcelain type unit shall consist of an interlocking strain (ball type) insulator together with two loop type dead end cable terminations.

C. All steel and malleable or ductile cast iron fittings shall be hot-dip galvanized in accordance with ASTM A123 or A153. Galvanizing shall be accomplished prior to assembly of the section insulator.

D. Testing:

1. All tests shall be conducted by the manufacturer. The Engineer reserves the right to attend the tests. Notify the Engineer not less than 10 days in advance of testing operations. A certified test report shall be submitted whether or not the Engineer attends the tests.

2. Submit test data or reference applicable field operational experience for the same product in a similar application. This performance history shall demonstrate that for a 5 year in-service period, no failure or detrimental effects from ultra-violet radiation and electrical tracking.

3. The related messenger insulators (for section insulators not supported from an aerial head guy) shall be tension-proof tested and all of the contact wire section insulator units shall be tension-proof tested to withstand 2.5 times the worst case contact wire tension.

4. All test reports shall be submitted to and approved by the Engineer prior to shipment of any components.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. Section insulators shall be installed as shown on the approved shop drawings.

B. All electrical connectors and clamps shall be prepared and protected externally and internally in accordance with the manufacturer's recommendations.

C. The method of installation shall assure there is no damage to the catenary wires. Any kinked contact wire shall be repaired as Manufacturer's approved method or replaced.

D. Adjust all new section insulators to provide for smooth passage of the pantograph and uninterrupted current collection by the pantograph until such time as the Engineer accepts the new catenary system.

E. Section insulators shall be installed a nominal stagger of zero, with an installation tolerance of plus or minus 1/2 inch.

3.02 FIELD QUALITY CONTROL

A. Field tests shall be carried out as recommended by the manufacturer.

B. Field tests shall be witnessed by the Engineer. Certified copies of the test results shall be submitted as required by Article 1.03.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Section Insulator Assemblies as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 69
OCS BALANCE WEIGHT ANCHOR ASSEMBLY

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes design, manufacture, supply, and installation of balance weight anchor assemblies for the Overhead Contact System (OCS), as shown on the Contract Plans and specified herein.

B. Section Includes:

1. OCS Balance Weight Anchor Assembly

C. Related Sections:

1. Section 01 00 00 – General Requirements
2. Section 34 23 43 – OCS Design Requirements
3. Section 34 23 80 – Overhead Contact System Installation
4. Section 34 23 86 – OCS Manuals and Training

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following to the Engineer for approval:

1. A complete set of shop drawings showing the BWA unit assembly, all components, and a bill of material giving dimensions, weights, and related design and product data. Each BWA assembly shall be configured for the exact OCS wire run and tension length involved.
2. List of special tools required for the BWA assembly and installation.

C. Submit certificate of compliance for each BWA assembly shipment. As a minimum, the certificate of compliance shall contain the following:

1. Product name
2. Drawing number and revision or date
3. Serial numbers (if required)

4. Quantity
5. Purchase order number
6. List of specifications to which the product was produced
7. Supplier's name and address
8. Signature and title of recognized quality authority

D. All factory test reports shall be submitted to the Engineer for approval.

E. Operation and maintenance data for BWAs shall be provided in accordance with Section 34 23 86, OCS Manuals and Training.

1.04 DELIVERY, STORAGE, AND HANDLING:

A. OCS balance weight anchor assemblies shall be packaged in a manner to allow stacking and outdoor storage until installation with no harmful effects.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. The Balance Weight Anchor (BWA) assembly automatically regulates the tension of the Twin or Single Messenger Simple Catenary Auto Tensioned style system by compensating for variations in conductor lengths resulting from changes in temperature due to ambient, solar, and electrical heating variations. The weight stack shall be installed on the exterior of the tubular poles.

B. For a full wire run tension length, a Mid-Point Anchor (MPA) assembly shall be located at approximately one-half of the distance between the termination ends (where the BWAs are located) and shall serve to secure the messenger wire and contact wire from along-track movement at this central point. The MPA effectively divides the full wire run length into two "half-tension" lengths between the MPA and the BWAs at each end. In addition, half-tension length wire runs are utilized where BWAs are located at one termination point and Fixed Termination Anchors (FTAs) are positioned at the other wire run termination. Half tension lengths of this configuration do not use a MPA assembly.

C. The BWA assembly shall maintain constant tension in the conductors to compensate for changes in ambient, solar or current heating temperatures. Changes in the lengths of conductors shall be compensated for by an equivalent change in the position of the balance weight stack on the anchor pole. Temperature stop devices shall be incorporated into the unit such that vertical movement of the weights is halted due to OCS behavior at conditions below 15 degrees Fahrenheit and above 130 degrees Fahrenheit.

D. The BWA assembly shall operate at a nominal pulley ratio of approximately 3:1.

E. The BWA assembly shall have pulleys suitable for the wire rope types used and shall be equipped with weatherproof bearings rated for outdoor (exposed) use in the San Diego, California environment. The bearings shall be fitted with zerk fittings to allow maintenance and sealed to prevent the ingress of moisture or other contaminants, and the loss of lubricant (if applicable).

F. The BWA assembly shall operate freely under all climatic conditions within the limits specified and shall function freely.

G. Balance weights shall be fabricated with steel. The weight shall be installed on the exterior of the tubular poles.

H. Weight sets shall be one casting. Additional steel plates may be used to achieve desired weight.

I. Tolerance on the complete balance weight stack shall be 0 lbs. to plus 50 lbs.

J. Weights shall be compact allowing for the required vertical movements provided by the available length of the support pole. Guides shall be used to keep the weight stack secured to the pole throughout the travel stroke length.

K. The BWA assembly shall have a minimum design life of 30 years and shall not normally require preventative maintenance or inspection at intervals of less than 12 months. The design shall permit access to the weight stack during installation and subsequent maintenance.

L. Assemblies and component parts shall be designed for ease of maintenance, replacement, assembly, and disassembly, which shall be accomplished with a minimum of special tools. Component parts shall be properly identified for this purpose. All special tools required to service and maintain the balance weight assemblies shall be provided to MTS at no cost.

M. The BWA assembly shall incorporate provisions for adjustment due to wire elongation (creep or stretch).

N. All materials and the unit design shall have been proven by the manufacturer's experience to be suitable for the purpose for which they are intended. They shall be suitable for the loads and climatic conditions existing in the project as noted in Section 34 23 43, OCS Design Requirements.

O. All external ferrous parts shall be stainless steel or hot-dip galvanized in accordance with the appropriate ASTM specification. Any ferrous parts which are not stainless steel shall be hot-dipped galvanized or shall be painted with an approved epoxy coating with color to match ANSI #61, light gray.

P. Each BWA tensioning device shall bear the manufacturer's name or trademark and year of manufacture clearly and permanently imprinted.

Q. If the weight itself is a one piece design, the amount of the weight (in pounds) shall be permanently affixed or cast into the weight itself.

2.02 TESTING

A. The BWA assemblies shall be factory inspected and field tested to ensure that they satisfy the requirements shown on the Contract Plans and specified in these Specifications, including dimensional accuracy and compatibility with mating components. A test report certifying these requirements shall be submitted to the Engineer.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. The BWA assemblies shall be installed as shown on the approved shop drawings and as specified in Section 34 23 80, Overhead Contact System Installation. All wire rope shall be non-rotational 316 grade stainless steel.

B. The MPA assembly for each wire run must be fully installed prior to the installation of the respective BWA assemblies.

C. Adjustment and testing of the BWA device shall be in conformance with the manufacturer's instruction manuals.

D. Since each BWA assembly shall be configured for the exact OCS run and tension length involved, appropriate site-specific installation and BWA pulley setting charts shall be provided in the as-built data for each BWA unit supplied.

E. A minimum of 30 days after the new contact wire is terminated to the balance weights; the Contractor shall reset the balance weight anchor assembly to the proper settings. All final OCS and BWA adjustments that are required by these acceptance checks shall be provided at no additional cost.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Balance Weight Anchor Assemblies as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 73
OCS FITTINGS AND HARDWARE

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes design, manufacture, supply, and installation of ferrous and non-ferrous metallic components, line material, hardware, and fittings for the Overhead Contact System (OCS), as shown on the Contract Plans and specified herein.

B. Section Includes:

1. Hanger Assemblies
2. Wire Cross Assemblies
3. Wire Splices
4. Clevis-Eye Fittings
5. Wire Terminations
6. Parallel Wire Clamps
7. Nuts, Bolts, Washers, and Cotter Pins
8. Messenger Wire Dead Ends
9. Links, Straps, and Eyebolts
10. Messenger and Contact (Trolley) Wire Terminations
11. Double Clevis End Fittings
12. Thimbles and Turnbuckles
13. Wire Sleeves
14. Messenger Wire Suspension Clamps and Span Wire Supports
15. Wire Clamps
16. Wire Connectors and Saddles
17. Wire Adjustable Straps
18. Strain Clamps
19. Knuckle Assemblies and Wire Spacers
20. Trunnion Clamps
21. Pole Bands and Connectors

C. Related Sections:

1. Section 01 00 00 –General Requirements
2. Section 34 23 43 – OCS Design Requirements
3. Section 34 23 80 – Overhead Contact System Installation
4. Section 34 23 86 – OCS Manuals and Training

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM) Ferrous Metals:

1. ASTM A27 – Standard Specification for Steel Castings, Carbon, for General Application
2. ASTM A47 – Standard Specification for Ferritic Malleable Iron Castings
3. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
4. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
5. ASTM A167 – Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
6. ASTM A518 – Standard Specification for Corrosion-Resistant High-Silicon Iron Castings
7. ASTM A536 – Standard Specification for Ductile Iron Castings
8. ASTM A668 – Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use
9. ASTM A711 – Standard Specification for Steel Forging Stock
10. ASTM A747 – Standard Specification for Steel Castings, Stainless, Precipitation Hardening

B. ASTM International (ASTM) Non-Ferrous Metals:

1. ASTM B148 – Standard Specification for Aluminum-Bronze Sand Castings
2. ASTM B248 – Standard Specification for General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar
3. ASTM B249 – Standard Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes and Forgings
4. ASTM B557 – Standard Test Methods for Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products
5. ASTM B584 – Standard Specification for Copper Alloy Sand Castings for General Applications
6. ASTM B686 – Standard Specification for Aluminum Alloy Castings, High-Strength

C. American Iron and Steel Institute (AISI):

1. C1035 to C1045 SBQ – Forged Steel
2. Types 302 and 304 – Stainless Steel

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit Certifications and Test Reports: Material, tests and certifications for each individual component and demonstration tests as required with test reports for complete assemblies. Submit copies of all field tests reports to the Engineer as required or recommended by these Specifications and applicable standards, or as necessary to establish compliance with the Contract Documents.

C. Shop Drawings: Submit Shop Drawings for all OCS hardware assemblies and components, as detailed in Section 34 23 43, OCS Design Requirements, showing details and dimensions, and giving designations of the materials comprising the various components together with technical, mechanical, and electrical data as appropriate.

1. Submit manufacturer product shop drawing for dielectric thimble for flexible wire rope hanger assembly with supporting documentation showing conformance with specified requirements to the Engineer for approval.

D. Samples of major assemblies and components shall be submitted to the Engineer for approval, as listed below, as well as any others that may be requested by the Engineer:

1. Messenger wire saddles
2. Contact wire clamps
3. Hanger assemblies
4. Wire splices
5. Messenger suspension clamps
6. Messenger span wire supports
7. Messenger and contact wire terminations
8. Parallel wire clamps
9. Operational (installation) and maintenance data, including all fastener torque requirements, shall be provided for all components addressed in this Section and/or utilized in the work, in accordance with Section 34 23 86, OCS Manuals and Training.

1.04 QUALITY ASSURANCE

A. Perform tension tests and demonstrate compliance with specified material characteristics. A minimum of three test bars shall be cast from each lot of metal. A lot shall consist of all castings produced from one furnace melt. Test bars shall comply with referenced ASTM Standard’s requirements.

B. Perform chemical analysis to demonstrate compliance with specified material characteristics. For chemical analysis, each lot of castings shall be analyzed for conformance with the chemical composition specified in the referenced ASTM standards.

C. Fasteners shall be tested in accordance with the ASTM mechanical testing requirements for the applicable type, length of product, and minimum tensile strength.

1.05 DELIVERY, STORAGE, AND HANDLING

A. The Identification mark of the manufacturer or foundry and the pattern numbers assigned by the supplier shall be cast into all castings. Marks and numbers shall be of readable size and in such a position that they will not affect the electrical or mechanical performance of the component or assembly. Bolts shall be marked according to ASTM standards.

B. Fittings and hardware shall be packed in accordance with the best commercial practice, adequate to ensure acceptance and safe delivery.

C. All shipping boxes, bags, or crates shall be properly marked showing the contents of each. If different materials are packaged in a box, bag, or crate, all items of a kind shall be boxed, bagged, or crated and properly marked or tagged prior to placement in the shipping vessel. Fittings and hardware shall be packaged in a manner to allow stacking and outdoor storage until final installation with no harmful effects.

PART 2 – PRODUCTS

2.01 MATERIALS

A. All fittings and hardware shall have a part number affixed which coincides with an approved cut sheet.

B. Material for hardware and fittings shall comply with the applicable referenced standards. Substitutions will be considered and approved if the requirements of the Contract Plans and these Specifications are satisfied. Ensure that the complete form, fit and function of all OCS components and hardware which make up the OCS assemblies and equipment are fully compliant as shown on the Contract Plans.

C. All materials and components used in the OCS assemblies shall be of sufficient strength and durability to withstand the calculated loads with addition of a minimum factor of safety of 2.0. The factor of safety shall be greater than 2.0 where shown on the Contract Plans and where recommended by the manufacturer.

D. Optional Hardware such as turnbuckles and guy grips, not shown on the Contract Plans may be installed to facilitate installation. Furnishing and installing such hardware shall be at no additional cost to MTS. The strength and quality of this optional hardware shall meet or exceed the strength and quality of the other hardware in the assembly. Introduction of this optional hardware shall not alter the function of the completed assembly, and all such optional hardware shall be approved by the Engineer through the shop drawing process prior to their supply and installation.

2.02 METAL CHARACTERISTICS

A. Malleable Iron: Fittings or components made of malleable iron shall be grade 32510 or better and shall conform to ASTM A47. All components and fittings shall be galvanized in accordance with ASTM A153.

B. Forged Steel: Material for forged steel shall comply with ASTM A711 or A668. All components and fittings shall be galvanized in accordance with ASTM A153.

C. Ductile Iron: Fittings or components requiring high yield strength shall be of ductile iron, grade 60-40-18 or better and shall conform to ASTM A536, All fittings and components shall be galvanized in accordance with ASTM A153.

D. Stainless Steel: Stainless Steel hardware shall conform to ASTM A747.

E. Non-Ferrous Metals: Copper alloys for fittings and components shall conform to ASTM B584 and B148.

F. Copper: All copper components shall conform to ASTM B248 or B249.

G. Aluminum components shall conform to ASTM B557 and B686.

H. All cotter pins, roll pins, spring clips and hitch pins, shall be made out of stainless steel.

I. Copper-Clad: Grounding components shall be the Manufacturer's standard items and shall conform to the IEEE definition of copper-clad materials.

J. Steel: Steel for balance weights (if adopted and approved) shall be casting grade, conforming to ASTM A711 or ASTM A668 and shall be galvanized in accordance with ASTM A153.

2.03 MISCELLANEOUS CHARACTERISTICS

A. Neoprene Isolation Sleeve for the Messenger Wire to Hanger Loop Clamp Pad for the Short, Insulated Hanger Assemblies: A synthetic rubber sheet material, Neoprene ASTM type CR (or approved alternate such as Hypalon or EPDM), industrial grade that is non-conducting and flexible, with excellent UV resistance characteristics with a Shore-A hardness rating of 70 plus or minus 5 after 10 seconds. The material shall exhibit good abrasion resistance, stable electrical characteristics, excellent toughness, a self-extinguishing non-propagating rubber suitable for a harsh outdoor environment, capable of consistently providing a 900V DC insulation level in the new hanger assembly. The exact sleeve material proposed shall be fully described by a detailed shop drawing submittal, including all dimensions, itemized material characteristics (technical and electrical) and laboratory test performance data.

B. Dielectric Thimble for Flexible Wire Rope Hanger Assembly: The dielectric teardrop shaped thimble shall be made of black non-metallic, ultraviolet light (UV) stabilized injection molded nylon material or approved equivalent manufactured by Ronstan, Sea Dog, or approved equivalent manufacturer. Thimble shall be sized for use with 3/16 inch wire rope. Material shall be impact resistant, rigid, and not demonstrate any high temperature distortion (softening or flaring) at ambient temperatures up to 150 degrees Fahrenheit and at atmospheric pressure. Material shall have excellent toughness and be suitable for use in a harsh outdoor marine environment with full sun exposure.

2.04 FABRICATION

A. The designated metals shall be fabricated by a method that will meet the requirements of this Section.

B. Castings shall be of uniform quality and shall be made in such a manner that the material of the casting conforms to the chemical and mechanical properties prescribed in the referenced ASTM standards.

2.05 WORKMANSHIP, FINISH, AND APPEARANCE

A. The castings shall be free of adhering sand, voids, cracks, surface porosity and non-uniform dimensions.

B. Ensure the form, function and fit, including the dimensional accuracy of all OCS assembly, equipment fittings and hardware.

C. Repairs shall be permitted only to the extent allowed by the referenced ASTM standards. If welding or repair of a greater magnitude is required, obtained Engineer's approval prior to performing any repair.

D. Malleable iron, ductile iron, forged steel and mild steel components in contact with the pole surface (if other than galvanized) shall be painted to match the finish of the pole.

2.06 GALVANIZING

A. Bolts, nuts, washers, anchors and other items of iron or steel hardware shall be hot-dipped galvanized as follows:

1. Perform galvanizing in accordance with ASTM A153, as applicable. The weight of the zinc coating shall be not less than 1.25 ounces per square foot.

2. Hardware items furnished galvanized shall be delivered with the necessary certificates of conformance with ASTM A153 and the required zinc coating specified.

2.07 GUY GUARDS

A. General: Guy guards shall be manufactured units, fabricated from UV stabilized high impact polyethylene, 8 feet long, full round snap-on units for all sizes of guy cable, high-visibility yellow color, furnished complete with integral locking straps for installation on guy cables without special tools.

PART 3 – EXECUTION

3.01 INSTALLATION REQUIREMENTS

A. Installation requirements for OCS fittings and hardware shall be in accordance with the approved shop drawings and as specified in Section 34 23 80, Overhead Contact System Installation.

B. All nuts and studs shall be torqued to the manufacturer’s recommendation, using an indicating torque wrench.

3.02 COMPONENT PERFORMANCE AND USABILITY

A. All fittings and hardware used for the OCS assemblies shall be selected and made such that they can be reused after removal (except for pole banding, wire splices and compression sleeves and caps).

B. All fittings and hardware shall be designed for easy interface with the other components of the electrification system.

C. All fittings and hardware shall be designed and installed to provide a fully functional, homogenous OCS hardware and assembly arrangement.

D. Components and assemblies shall be designed such that all fastenings and adjustments are accomplished with the same dimensional standards or tools (i.e., American standards shall be consistently used on the same part).

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Fittings and Hardware as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 76
OCS DISCONNECT SWITCHES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes design, manufacture, supply, and installation of outdoor OCS manual non load-break DC disconnect switches and related accessories for the Overhead Contact System (OCS), as shown on the Contract Plans and specified herein.

B. Section Includes:

1. OCS Disconnect Switches

C. Related Sections:

1. Section 01 00 00 –General Requirements

1. Section 34 23 43 – OCS Design Requirements

2. Section 34 23 80 – Overhead Contact System Installation

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM B187 – Standard Specification for Copper, Bus Bar, Rod, and Shapes and General Purpose Rod, Bar, and Shapes

B. California Public Utilities Commission (CPUC):

1. CPUC GO 143 – Safety Rules And Regulations Governing Light-Rail Transit

C. Institute of Electrical and Electronics Engineers (IEEE):

1. IEEE C37.30 – Standard Requirements for High-Voltage Switches

D. National Electrical Code (NEC)

E. National Electrical Manufacturers Association (NEMA):

1. NEMA 250 – Enclosures for Electrical Equipment (1,000 V Maximum)

2. NEMA ICS 1 – Industrial Control and Systems: General Requirements

3. NEMA ICS 2 – Controllers, Contactors and Overload Relays Rated 600 V

4. NEMA SG5 – Power Switchgear Assemblies

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. The following shall be submitted and approved by the Engineer' prior to fabrication:

1. Complete manufacturer's descriptions, catalog data, ratings, and information, including model number.
2. Manufacturer's general and detail arrangement shop drawings showing dimensions, sizes, materials, and installation instructions.
3. Shop drawings, as detailed in Section 34 23 43, OCS Design Requirements, showing electrical schematic and wiring diagrams.

C. Submit qualification and production test reports 15 days after completion of each component testing.

D. Submit details packaging for long-term storage. Obtain for Engineer's approval prior to shipping.

1.04 TESTS

A. General: Disconnect switches shall be tested at the factory prior to shipment, as specified herein.

B. Qualification Tests: Qualification tests shall be performed to prove compliance with the Specifications. Tests shall be conducted generally in accordance with those described in IEEE C37.30, including the following:

1. Dielectric tests
2. Short-time current test
3. Temperature-rise test

C. Production Tests: Production tests shall be performed on switches to check the quality and uniformity of workmanship and materials used. Test shall include the following:

1. Operation of all components
2. Power frequency dielectric withstand
3. Electric resistance of current path

1.05 DELIVERY, STORAGE, AND HANDLING

A. The type of packaging for long-term storage shall be approved by the Engineer before any material is shipped.

B. Disconnect switch assemblies shall be packaged and the contents marked with specific assembly references in a manner to allow easy identification when stacked for storage.

C. Disconnect switches may be stored indoors. If stored outdoors, packaging shall allow outdoor storage for a 3-year period with no harmful effects.

PART 2 – PRODUCTS

2.01 GENERAL

A. All pole-mounted switches on aerial structures shall be outdoor type with pad lockable operating mechanism and insulated connecting rods. The operating mechanism shall be suitable for pole mounting. Interlocking devices shall be provided as shown in the Contract Plans.

B. For at-grade areas, all pole-mounted switches shall be outdoor type with hook-stick operating mechanism. The operating mechanism shall be suitable for pole mounting.

C. Prepare detailed designs for each of the required assemblies based on the general concepts shown on the Contract Plans. The designs for the assemblies shall be subject to approval by the Engineer.

D. Disconnect switch installation shall be in accordance with Section 34 23 80, Overhead Contact System Installation, of these Specifications, and as specified herein.

E. All the pole-mounted DC disconnect switches shall be single-pole, single-throw, bolted pressure type, no-load break, non-fusible switches, with manual operators. The switches shall be suitable for pole mounting. Disconnect switch mounting to pole mounted support brackets shall use hole spacing consistent with that shown on the Contract Plans and used on the existing system. The existing hole spacing of the switch mounts to the spreader brackets are 10-inches horizontal by 21-inches vertical, and hole diameter shall be 9/16-inches. Disconnect switch operating hand-throw mechanism shall have 9/16 inch mounting holes spaced at 10 inches by 10 inches and be lockable with a standard MTS padlock in an open or closed position. Double crossover tie-through disconnect switches shall have the same horizontal hole spacing and same size hole diameter; however the double crossover tie-through pressure bolted switches shall be mechanically interlocked to prevent both switches from being closed at the same time. Power shall only be supplied to the catenary over the double crossover diamond section from one mainline catenary at a time. Double crossover tie-through disconnect switch operating hand-throw mechanisms shall have 9/16 inch mounting holes spaced at 10 inches by 10 inches and shall be lockable with a standard MTS pad lock.

F. The DC disconnect switches shall be mounted on the OCS poles as shown on the Contract Plans and be exposed to view (i.e., no enclosure).

G. Each disconnect switch shall be provided with a permanent corrosion resistant warning sign. The sign shall read – “DO NOT OPERATE UNDER LOAD” with 2-inch high minimum letter size.

H. Switches shall be labeled with the track section it supplies. Labeling shall be consistent with the Substation DC Breaker Labeling (e.g. 172-1, 172-2, 172-3, 172-4). Signs shall be reflectorized for night viewing.

2.02 RATINGS

A. Switches shall be rated for 1000 V DC operation with 3.0 kV, minimum insulation level. Continuous current ratings shall be 2500A without exceeding 120 degrees Fahrenheit rise above a maximum ambient temperature of 100 degrees Fahrenheit. Switches shall have a momentary current withstand rating of not less than 100 kA, DC.

2.03 FABRICATION

A. Switch Contacts:

1. Moving and stationary contact surfaces shall be silver plated copper. All other current-carrying parts shall be of high-conductivity copper or copper alloy. Contacts shall be self-aligning, wear-compensating, and with initial wiping action.

B. Manual-Operated Disconnect Switch Assembly:

1. Each switch on aerial structures shall be furnished with an insulated operating rod with shovel operating handle. The operating handle shall be mounted at a height above finished grade level of 4 feet-6 inches. All operating handles shall be furnished with heavy duty lugs to accept padlocks in the fully open and closed switch positions. Switch positions shall be indicated with “OPEN” and “CLOSED” permanent identification labels on/near the operating mechanism. Stops shall be provided to positively restrain any movement of the operating handle in the locked-closed or locked-open position. All metal operator mechanisms, rods or handles shall have a grounding (braided) strap bonded to the OCS pole or structure supporting the disconnect switch.

2. For at-grade areas, disconnect switches shall be operable with standard telescoping hook sticks. The operating handle shall be equipped to accept a standard hook stick end.

3. All non-current carrying metal parts shall be hot-dip galvanized steel.

4. All switches shall be double insulated between the current-carrying components of the switch and the OCS support pole. Each level of insulation shall be a minimum of 2 kV under wet and dry conditions.

5. Cable Termination: The line and load side disconnect switch terminals shall be furnished with silver plated copper buses complying with ASTM B187, to accommodate the number and size of copper cables as shown on the Contract Plans. The switch terminals shall have provision for NEMA drilled (2-hole or 4-hole) cable terminal lugs.

6. Padlocks: Each disconnect switch handle operator, except for the hook-stick operator, shall be provided with an outdoor type, heavy duty, keyed padlock. All padlocks shall be keyed alike and approved by the Engineer. Two (2) keys shall be provided for each padlock and turned over to the Engineer with all keys identified.

7. Disconnect Switches: Every LRT system disconnect switch intended for isolating an indoor or outdoor traction power circuit from sources of power using switches that have no rated capability for making or interrupting currents, shall be locked or interlocked to prevent opening or closing under energized conditions as required by CPUC, 143, Section 10.07.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Switches shall be field installed on the OCS structures as shown on the Contract Plans and specified herein. Field mounted switches shall be installed in accordance with the approved shop drawings. Brackets, bolts and support items shall be provided as required, in accordance with the disconnect switch manufacturer’s instructions.

B. Prior to energization of the OCS, verify correct operation of all disconnect switches installed.

C. All wiring shall be provided as required. Conductor sizes, composition and insulation shall be as shown on the approved OCS hardware shop drawings. All necessary additional hardware such as bushings, connectors, cable supports, grounding conductors, and all basic electrical materials needed for the installation of the equipment and accessories shall be supplied.

D. The installation shall conform to pertinent requirements of the National Electrical Code (NEC).

E. Provide cable grips to support cables as required.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Disconnect Switches as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 79
OCS UNINSULATED CONDUCTORS AND CABLES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes the manufacture, supply, and installation of uninsulated conductors and cables for the Overhead Contact System (OCS), as shown on the Contract Plans and specified herein.

B. Section Includes:

1. Messenger Wire
2. Contact Wire
3. Jumper Wire
4. Mid-Point Anchor Tie Wire

C. Related Sections:

1. Section 01 00 00–General Requirements
2. Section 34 23 80 – Overhead Contact System Installation

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM B1 – Standard Specification for Hard-Drawn Copper Wire
2. ASTM B3 – Standard Specification for Soft or Annealed Copper Wire
3. ASTM B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
4. ASTM B47 – Standard Specification for Copper Trolley Wire
5. ASTM B105 – Standard Specification for Hard-Drawn Copper Alloy Wires for Electric Conductors
6. ASTM B173 – Standard Specification for Rope-Lay-Stranded Copper Conductors Having Concentric-Stranded Members, for Electrical Conductors
7. ASTM B193 – Standard Test Method for Resistivity of Electrical Conductor Materials

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit Shop Drawings and technical data for approval by the Engineer prior to cable and wire procurement. Included as a minimum shall be the following:

1. Physical Characteristics and Parameters:
    a. Size
    b. Type
    c. Material
    d. Number of and diameter of individual wires
    e. Overall diameter
    f. Cross section area
    g. Weight per foot
    h. Rated breaking load
2. Electrical Characteristics:
    a. Maximum rated ampacity and temperature for each size (AWG/kcmil)
    b. Resistance per unit length

C. Provide samples to the Engineer for approval of all conductors proposed for use on this project.

D. Furnish certification from the conductor manufacturer verifying that the conductors have been manufactured, inspected, and tested in accordance with applicable portions of the referenced standards, the Contract Plans, and these Specifications.

E. Provide certified copies of manufacturer's test reports for the specific conductors furnished, which shall include, but not be limited to, the following information:

1. Initial and Final Modulus of Elasticity (E)
2. Coefficient of Thermal Expansion (CTE)
3. Yield stress
4. Hardness values

1.04 DELIVERY, STORAGE, AND HANDLING

A. Ensure that all materials furnished are suitably packaged and protected against damage during delivery and transportation.

B. Store all products in accordance with the manufacturer's instructions to ensure that all material is protected from damage and exposure.

C. Handle and otherwise use the wire and cable in accordance with the manufacturer's instructions so as to ensure that the products are not damaged or misused prior to or during installation.

D. Any damage to the wire and cable shall be repaired and all replacements shall be accomplished in accordance with the manufacturer's instructions and with the approval of the Engineer.

E. All wire and cable shall be shipped on reels suitable for the conductor type and weight carried.

PART 2 – PRODUCTS

2.01 MATERIAL

A. Conductor materials shall be of a composition, quality, and purity, such that the finished product shall have the properties and characteristics described in these specification. All conductors shall be of uniform size and shape.

B. Contact Wire – the contact wire shall be solid grooved, 350 kcmil hard drawn copper wire with a minimum breaking strength of 11,800lbs, a coefficient of expansion of 9.4×10^{-6} per degree Fahrenheit, and a final modulus of elasticity of 17.0×10^{6} psi.

C. Messenger Wire – the messenger wire shall be 37 strand (concentric) 500 kcmil hard drawing copper wire conforming to ASTM B3 and B8 with a minimum breaking strength of 22,495 lbs, coefficient of expansion of 9.4×10^{-6} per degree Fahrenheit, and a final modulus of elasticity of 17.0×10^{6} psi.

D. Jumper Wire – the jumper wire, as shown on the Contract Plans, shall be 350 kcmil and 500 kcmil bare, single rope-lay conductor, soft copper, Class G stranding (superflex), conforming to ASTM B3 and B173.

2.02 PERFORMANCE

A. The physical, mechanical, and electrical properties of the conductors shall conform to the requirements shown on the Contract Plans, as specified in these specifications and the pertinent provisions of all Standards referenced in this Section.

2.03 INSPECTION AND TESTING

A. The Engineer reserves the right to witness the manufacture, testing and packing of all conductors. Notify the Engineer not less than 10 days in advance of manufacturing and testing operations.

B. All conductors shall be subject to factory quality control tests as required in the applicable Standards. Tests shall be performed on each reel prior to shipment. A certified copy of the test report for each reel shall be submitted to the Engineer prior to shipment. A copy of the test report shall be packed with each reel.

C. Grooved contact wire shall be supplied in accordance with ASTM B47. The twist test shall be performed as specified for round wire. For grooved contact wire, the twist shall be omitted.

2.04 PACKAGING AND MARKING

A. All conductors shall be shipped on reels, suitable for the weight of the conductors, and shall be protected from damage. The grooved contact wire shall be wound on the reel in such manner that the vertical axis of cross section shall be perpendicular to the axis of the reel, with the bottom lobe closer to the center of the reel.

B. Each reel shall consist of one continuous conductor, and shall have the required length of conductor so that no field (external) splices are required in the tension lengths as installed. The wire run number shall be attached to the reels.

C. Contact wire shall be permanently identified at intervals of 300 feet along its length on the surface of the top lobe, showing the manufacturer's mark, material, size in AWG/kcmil and year of manufacture.

D. Each reel shall have a strong, weatherproof tag or marker securely fastened to it, showing the size and type of conductor, as well as the ASTM designation, name and mark of the manufacturer, total reel length and weight, and manufacturer's special instructions.

E. A stripe in any contrasting color (say black) approximately 1 inch wide shall be painted across the outermost layer on each reel. Any visible conductor shift at this line, upon receipt at the job site, will be treated as indicating a relative wire movement during shipment, and is cause for reel rejection.

F. Factory splices in contact wire stock shall be marked with paint or dye prior to wire drawing; the marks shall be readily distinguishable after the wire drawing process.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Conductor installation shall be in accordance with Section 34 23 80, Overhead Contact System Installation.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Uninsulated Conductors and Cables as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 80
OVERHEAD CONTACT SYSTEM INSTALLATION

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work specified in this Section includes the installation of the complete Overhead Contact System (OCS), including poles, pole guys, cantilevers, headspans and cross-spans, wiring, surge arresters, insulators, disconnect switches, feeder wire and cable, and other components required to provide a complete operating system.

2. Refer to Section 01 00 00 Part 2 for Owner Furnished Products. Specifications describing the manufacturing and/or purchasing of these products are included for reference and if changes require the Contractor to furnish extras.

3. The Contractor shall be responsible for reviewing, inspecting, itemizing, accepting, transporting and storing the Owner Furnished OCS material.

B. Section Includes:

1. OCS Installation

C. Related Sections:

1. Section 01 00 00 –General Requirements

2. Section 34 23 36, OCS Steel Structures, Metal Fabrications, and Miscellaneous Metal

3. Section 34 23 39 – Metal OCS Poles

4. Section 34 23 46 – Grounding and Bonding of OCS Assemblies

5. Section 34 23 59 – OCS Lightning Arresters

6. Section 34 23 66 – OCS Section Insulator Assemblies

7. Section 34 23 76 – OCS Disconnect Switches

8. Section 34 23 83 – OCS Testing

1.02 REFERENCE STANDARDS

A. All OCS installations shall comply with the requirements of the following California Public Utilities Commission (CPUC):

1. General Order No. 95 – Rules for Overhead Electric Line Construction

2. General Order 143-B – Safety Rules and Regulations Governing Light Rail Transit

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submittals shall include Stringing Procedures, Shop Drawings, Product Data, and Samples.

1. Submit product data and shop drawing for air gap sign and post.

C. Test Reports: Submit certified copies of reports of field tests to the Engineer to establish compliance with the Contract Documents. See Section 34 23 83, OCS Testing.

D. Conductor stringing records shall be prepared for each catenary tension length and submitted on completion of the work. These records shall show, as a minimum:

1. Date
2. Wire run number
3. Structure location at anchorages
4. Reel number of messenger
5. Reel number of contact wire
6. Length of each conductor installed
7. Weather description and ambient temperature at commencement and end of stringing
8. Location of factory splices
9. Conductor tension for “Soaking” pre-stressing of the wire
10. Time pre stressing starts
11. Dynometer reading every hour and re-tension
12. Ending time of pre-stressing

1.04 QUALITY ASSURANCE

A. The completed OCS shall have an appearance acceptable to the Engineer with minimum adverse impact on fixed facilities and surrounding areas after all components, equipment, and hardware items are installed in place and final adjustments are made. To ensure this, submit to the Engineer, prior to starting on-site work, information regarding proposed components and installation methods, accompanied by drawings of existing overhead contact systems constructed similarly.

1.05 DELIVERY, STORAGE AND HANDLING

A. Contractor shall coordinate with MTS and arrange to pick up the OCS material from an MTS storage location. At the time of pick up, the Contractor shall complete a joint inspection with an MTS representative of the material to check for completeness.

B. Upon completion of the joint inspection, the Contractor shall complete and submit an OCS Material Receipt Acknowledgement Form to take responsibility for OCS material until project closeout or MTS acceptance. Even if the joint inspection takes place for all of the material at one time, a separate OCS Material Receipt Acknowledgement Form shall be submitted for each OCS location of Work.

C. The OCS Material Receipt Acknowledgement Form shall include:

1. Segment/OCS Location
2. Date/Time of Joint Inspection
3. Names of joint inspectors
4. Itemized list of material inspected and received
5. Exceptions noted (if any, shall include documentation, including photographs of any/all items that are excepted and a proposal of how each open item can be remedied by the Contractor).
6. Signature of Contractor's Inspector and Contractor's Superintendent of OCS.

D. The OCS Material Receipt Acknowledgement Form shall be submitted to MTS no later than 7 calendar days after the joint inspection takes place.

PART 2 – PRODUCTS

2.01 AIR GAP SIGNS

A. Sign Posts: Sign posts shall be galvanized steel. Coordinate with the Engineer regarding post requirements and submit design to the Engineer for approval. Post shall be selected to withstand wind load. Sign posts shall be one piece with no splices, unless otherwise approved by the Engineer.

PART 3 – EXECUTION

3.01 GENERAL

A. It shall be the Contractor's responsibility to ensure that the installation complies with the acceptance requirements for the Overhead Contact System, as specified in in Section 34 23 83, OCS Testing.

B. All OCS installations shall be configured to clear the pantograph dynamic envelope.

C. Installation of new steel poles required for support of the OCS is specified in Section 34 23 39, Metal OCS Poles.

D. Materials and components to be installed under this Section are specified under Section 34 23 36, OCS Steel Structures, Metal Fabrications, and Miscellaneous Metal and under other applicable OCS sections.

E. Grounding and bonding of OCS poles, equipment, and wiring is specified in Section 34 23 46, Grounding and Bonding of OCS Assemblies.

3.02 LOCATION OF STRUCTURES

A. Reference points for location of OCS structures and facilities are shown on the Contract Plans.

B. Actual location of OCS structures will be determined by the Contractor, who is responsible for installation of the OCS structure and guy anchor foundations to be utilized for the OCS installation.

C. Before installing poles, check the pole foundation locations and attachment provisions, and advise Engineer of any deficiencies that could result in an unacceptable OCS installation if not corrected. Engineer will advise of remedial action to be taken.

D. Before any on-site installation Work is started in a given area, the Engineer will confirm that the tracks are in their final position. If adjustment of track alignment or level is still in progress, the OCS installation Work shall be limited to items, such as pole placement and installation of underground cable or grounding systems, that are unaffected by minor track position adjustment. All OCS items installed to tolerances that depend on track alignment and level, such as cantilevers and hangers, stringing of wire, etc., shall be deferred until the track alignment is completed as designed.

E. Measure and record the actual location of each OCS foundation with respect to the adjacent track, and the superelevation magnitude and direction, prior to starting installation of poles, cantilevers, and other OCS structures and assemblies, in order to insure that, in all locations, these structures are installed with the correct geometrical relationship to the track alignment as shown on the Contract Plans.

F. The reference point for locating structures with respect to the track shall be the design position, as shown on the Contract Plans. Any deviations in the actual position of the track from the design position shown on the Contract Plans shall be referred to the Engineer.

G. The setting dimensions for each structure with respect to the reference point shall be as given in the OCS layout schedule of the Contract Plans. Structure offsets shall generally be at right angles to the track center line, radial if on curves.

H. All major structures that might interfere with OCS installation shall be clearly identified in terms of location and elevation, referenced to the adjacent track.

3.03 STRUCTURE NUMBERING

A. All structures shall be clearly and permanently numbered, using the reference numbers shown on the Contract Plans. Center poles shall be numbered on both sides facing the tracks as soon as poles are set.

B. Elevated poles shall be numbered in the same order, size and style as required for at-grade poles. In areas of low illumination, luminous numbers shall be employed to improve visibility. Numbering shall be at eye level to train operator, the bottom of number shall be approximately 8 feet above the rail. All numbers shall be reflectorized for night operations. Numbering shall be banded to pole with stainless steel banding.

C. Street poles located behind sidewalks used for head span/pull-off wire OCS support shall have a single number facing in to the LRT track.

D. On overhead bridge locations, where it is impractical to stencil the OCS support assembly, numbers may be applied to the adjacent structural wall, as approved by the Engineer, in a manner and order that will clearly identify the item to which the number applies.

3.04 INSTALLATION TOLERANCES

A. Installation tolerances shall be as follows:

1. Cantilever along track offset: plus 6 inches
2. Hanger assembly length: plus 1/2 inch
3. Hanger assembly spacing: plus or minus 6 inches
4. Contact wire mid-span and support locations:

Location	Lateral (Inches)	Vertical (Inches)
Overhead Structure Crossings	+/- 1/2	0
Overlap Locations (Between parallel wires)	+/- 1/2	+ 1/2
All Other Locations	+/- 1/2	+ 1/2

5. Change in contact wire gradient relative to track:

LRV Speed	Max. Gradient
1 – 15 mph	2.3%
16 – 30 mph	1.3%
31 – 45 mph	0.8%
46 – 60 mph	0.6%

B. The Contractor shall submit and follow manufacturer recommended torque requirements for all OCS hardware.

3.05 INSULATORS

A. All insulators shall be cleaned before installation. Only clean rags, free from any abrasive material shall be used for cleaning insulators. Wire brushes shall not be used for cleaning any parts, metal or otherwise. In the completed line, all insulator assemblies and hardware shall be clean and free from nicks, chips or other marks. Chipped or cracked insulators shall be replaced.

B. Provide double insulation in accordance with the California Public Utilities Commission General Order No. 95.

C. Porcelain insulators shall be used where shown on the Contract Plans. Ultraviolet resistant synthetic insulators shall only be used where shown on the Contract Plans.

3.06 HARDWARE

A. All hardware shall be installed in accordance with the approved procedures by the Engineer and per manufacturer's shop drawings. Bolts and nuts shall be properly tightened in accordance with the manufacturer's recommendations. All bolts shall be of sufficient length for a full thread beyond the nut and locknut, but shall not protrude more than one and one-half inches beyond the nut and locknut. Bolt ends shall not be cut off.

B. All locknuts shall be installed according to manufacturer's instructions.

C. Hardware shall be installed using tools and methods specified by the manufacturer and approved by the Engineer.

D. Hardware shall be inspected for cleanliness and damage. Any item that does not fit, has been beaten with a hammer, creates scraping of galvanizing during or after installation, or is found defective, will be rejected. The word “fit” as used here shall be understood to mean connections accurately fit together to form tight, hairline joints or components align as shown on Contract Plans and approved shop drawings.

3.07 INSTALLATION OF POLES

A. Poles shall be installed as shown on the Contract Plans and as specified in Section 34 23 39, Metal OCS Poles.

B. The type, location, setting height, offset and rake of each pole shall be as shown on the OCS Layout Schedules of the Contract Plans.

3.08 INSTALLATION OF DOWN GUYS

A. Down guys of the sizes and types shown shall be installed as shown on the Contract Plans.

B. Down guys shall be installed before the catenary wires are strung. They shall be pulled taut, and secured in place with provisions for future adjustment as required to hold the structure in proper alignment after wires are pulled up.

C. Down guy attachments shall be installed as recommended by the manufacturer.

D. Each guy to an anchor shall have an eight foot guy guard, installed as shown on the Contract Plans, unless otherwise directed by the Engineer.

3.09 INSTALLATION OF GALVANIZED STEEL AND STAINLESS STEEL WIRE AND ROPE

A. Galvanized steel and stainless steel wire and wire rope shall be used at locations as shown on the Contract Plans.

B. Galvanized steel and stainless steel wire and wire rope shall be cut and installed using tools and methods specified by the manufacturer.

C. Splicing of the galvanized steel and stainless steel wire and wire rope will not be permitted.

3.10 INSTALLATION OF BRACKET ARMS, CANTILEVERS AND OCS SUPPORT

A. The type of cantilever to be installed on each pole or support is shown on the Contract Plans as a cantilever-assembly and registration-assembly reference. The Contract Plans for the cantilever assemblies are general in nature and the Contractor is responsible for the detail design. Double insulation shall be provided in accordance with the California Public Utilities Commission General Order No. 95.

B. Cantilevers and OCS supports shall be designed, assembled and installed to meet all dimensional criteria and to clear the pantograph dynamic envelopes. The Engineer will furnish the actual vehicle pantograph dimension. Verify pantograph dynamic envelope shown prior to the cantilever final design.

C. The wire height, stagger and heel setting shown on the Contract Plans are related to the reference point and the superelevation, as shown on the Contract Plans.

D. For stability during stringing, the cantilevers shall be temporarily restrained to prevent collapse due to swinging. The details of the restraint shall be submitted to the Engineer for approval.

E. For auto-tensioned equipment, the along-track offset of the cantilever for various temperatures shall be as shown on the Contract Plans. The along-track offset of the cantilever on completion shall be in accordance with its distance from the midpoint anchor for the prevailing temperature.

F. Cotter pins and nuts on each cantilever shall be located on the same side of the structure to assure uniformity along the line.

G. Assemblies fitted with pins, cotters, bolts and nuts shall be oriented where possible in such a manner as to lock these components together by gravity if the pins or nuts should become detached under service conditions.

H. Components employing a hinge or swivel shall be greased, using a manufacturer recommended/approved conductive lubricating grease, before assembly of the rubbing surfaces and cleaned of extra grease.

I. After installation of cantilevers and stringing of conductors, adjustment may be required to the stagger, heel setting, contact wire height and cantilever inclination to be within the specified design tolerances.

J. Conductor interfaces of all clamps for feeder terminations, equalizing jumpers and continuity jumpers shall be coated with conductive grease and cleaned of extra grease.

K. Conductive lubricating grease shall be applied to the retainer bars of cross contact bridges and cleaned of extra grease.

L. The cross-track alignment of the vertical center lines between messenger, contact or bridle wires shall be within 1/2 inch per foot of vertical separation.

M. Damage to galvanized surfaces shall be repaired by the application of a suitable zinc-rich, cold-galvanizing repair paint or compound as detailed in Section 34 23 39, Metal OCS Poles of the Specifications and in accordance with the manufacturer's instructions.

N. After 30 days, BWA shall be re-set to temperature due to wire stretch, also all cantilever assemblies shall be adjusted to match along track settings on the installation chart.

3.11 HANGER ASSEMBLIES

A. Hanger assembly types and locations shall be as shown on the Contract Plans.

B. Hanger lengths shall be adjusted in the field and sized to ensure a smooth contact wire profile at a constant pantograph height above top of rail except in transition areas. In transition areas the contact wire shall maintain a smooth constant rate of transition from one contact wire height to another.

C. Hanger assembly spacing shall be as shown on the Contract Plans. Hanger assembly lengths shown on the Contract Plans are approximate lengths; actual length may vary depending on track profile and OCS conductor height variations.

D. Hanger assembly marine grade (SAE 316, 316L, or approved equivalent) stainless steel saddles shall be securely fitted to the conductors as shown on the Contract Plans using a marine grade stainless steel bolt and spacer sleeve. Hangers shall properly seat on saddles to avoid excessive wear or damage.

E. Hanger assembly shall be installed uniformly along the line with the top tail of each hanger facing the same rail when looking in the direction of increasing station. Hanger identification

and temporary support tie wires, S hooks, and/or wire clips (such as Crosby u clamps or approved equivalent) shall be removed from the completed installation.

F. Hanger assembly shall be plumb within 1/2 inch.

G. Hangers shall be SAE 316 or 316L grade stainless steel wire rope and final assembly shall be crimped with a wire rope sleeve connector, no temporary wire clips (Crosby, or approved equivalent) shall be left in place.

H. The hanger assembly shall be non-conductive by the use of a black marine grade ultraviolet light stabilized nylon thimble (Ronstan, Sea Dog, or approved equivalent) or insulator as shown on the Contract Plans.

3.12 MESSENGER AND CONTACT WIRE STRINGING

A. All conductors shall be installed in accordance with good overhead line practice and the manufacturers' recommendations, subject to approval of the Engineer. Due regard shall be made for conductor creep. The pre-stressing method (minimum 12 hours) shall be approved by the Engineer for the applicable conductor. The initial stretch and creep shall be removed at the time of installation.

B. During the pre-stressing duration, the tensions shall be monitored every hour and maintained. A pre-stressing documentation log shall be completed and submitted to the Engineer.

C. Stringing of the messenger and contact wire shall start from an anchor location. After the initial termination is made, the conductor shall be pulled from the reel and lifted into the sheaves at each support. Sufficient tension must be maintained in the conductor during stringing to ensure that, under no circumstances, does the conductor touch the ground or track between support points.

D. When the second anchor location is reached, the messenger conductor shall be tensioned above the specified erection tension by 1,500 lbs. This tension shall be held for a minimum of 12 hours and then slackened to the specified erection tension for the wire temperature at that time, and the dead-end assembly attached.

E. Final adjustment to the specified stringing tension shall be made progressively, working any slack from the first anchor location toward the second anchor location at the other end of the run.

F. The tension shall be adjusted so that it will be within 5 percent, plus or minus, of the erection tension derived from the tables.

G. When the proper tension has been obtained, the messenger suspension clamps at each support point shall be tightened to the manufacturer's specified torque onto the stranded conductor.

H. The contact wire shall be temporarily supported by cam buckle straps or hanger assemblies with temporary S hook or equivalent temporary support method. Regardless of method, the contact wire shall not be restrained from longitudinal movement during tensioning and temporary support assemblies shall be properly sized and configured to support the wire until the permanent hanger assembly is installed. Temporary contact wire support method shall not permit the wire to drop to the ground.

I. Contact wire shall be held in proper lateral position, in relation to the centerline of track, using temporary rollers to prevent kinking.

J. Kinks in the contact wire will not be accepted. The Contractor shall use a contact wire roller tool to remove kinks in the contact wire.

K. Contact wire shall be tensioned in accordance with the tension values shown on the Contract Plans for the appropriate equivalent span and temperature. The contact wire shall be over tensioned by 1,000 lbs. and held for a minimum of 12 hours before reducing to the specified tension and making the final termination.

L. Conductor tensions, cantilever settings, and balance weight settings are temperature related. During stringing, actual conductor temperatures, as measured by contact thermometers or infrared method, shall be used in conjunction with the stringing charts to ascertain the various stringing parameters. The stringing charts on the Contract Plans shall be checked for conformity to the actual wire data before messenger and contact wire stringing is started.

M. Ensure that the installation complies with the acceptance requirements for the Overhead Contact System as specified in Section 34 23 83, OCS Testing.

N. All wire runs are to be shipped in continuous lengths without splices, and that no splices may be inserted without the approval of the Engineer. De-stranding (bird caging) of stranded conductor is unacceptable.

O. The contact wire shall be free of twists from anchor clamp to anchor clamp.

P. In-running contact wires crossed by another in-running contact wire shall be fitted with a contact bridge on auto-tensioned and fixed-terminated sections.

Q. All termination fittings shall be oriented in accordance with the manufacturer’s recommendations.

R. Both contact and messenger wires shall be grounded during and after the stringing process prior to energization.

3.13 INSTALLATION OF INSULATED AND UNINSULATED OVERLAPS, AND OCS AT CROSSOVERS AND TURNOUTS

A. The arrangements for the OCS for tangent and curved track system overlaps, and at crossovers and turnouts shall be installed as shown on the Contract Plans.

B. The locations, specific dimensions for wire heights and staggers, and the support and registration assembly types for these locations are shown on the OCS Layout Schedules on the Contract Plans and the details shown on the Contract Plans.

C. Final adjustments shall provide acceptable transfer of the pantograph from one tension length to another, or from mainline to cross-over or turnout wiring, without loss of contact.

D. Two air gap signs shall be installed at each insulated overlap; one on each side of the insulated overlap. Each air gap sign shall be installed 10 feet in front of the insulated overlap in order to be visible from the approaching train.

3.14 INSTALLATION OF SECTION INSULATORS

A. Section insulator types and locations shall be located as shown on the Contract Plans.

B. Section insulators shall be installed as recommended by the manufacturer and as required to meet the design requirements specified in Section 34 23 66, OCS Section Insulator Assemblies, of these Specifications.

C. The manufacturer's representative shall assist, as needed, in supervising the installation of the section insulators.

D. After installation, adjustment may be required to insure proper operation. This shall be done as required and as directed by the Engineer.

3.15 INSTALLATION OF DISCONNECT SWITCHES

A. Disconnect switches shall be located as shown in the Contract Plans and shall be arranged and installed as recommended by the manufacturer and as required to meet the design requirements specified in Section 34 23 76, OCS Disconnect Switches of these Specifications.

B. Disconnect switches shall be pole-mounted and installed such that they do not violate the vehicle/pantograph envelope. Disconnect switches shall be adjusted after installation in accordance with manufacturer's instructions for proper mating, alignment and operation.

C. Disconnect switches shall be fitted with temporary locks, during installation, in order to prevent unauthorized operation of the switches.

3.16 INSTALLATION OF LIGHTNING ARRESTERS

A. Lightning arresters for the OCS shall be installed as shown on the Contract Plans and specified in Section 34 23 59, OCS Lightning Arresters.

3.17 INSTALLATION OF BALANCE WEIGHT ANCHOR ASSEMBLIES

A. Balance weight assemblies shall be installed at locations shown on the Contract Plans.

B. The type of balance weight assembly at each location shall be as shown on the Contract Plans.

C. A chart, showing balance weight assembly setting tolerances for various wire temperatures and tension lengths, is shown on the Contract Plans.

D. Balance weight assemblies shall be free-moving between conductor temperatures of 15 degrees Fahrenheit and 130 degrees Fahrenheit. A mechanical stop shall be provided to restrain the counterweights from moving at temperatures above 130 degrees Fahrenheit or below 15 degrees Fahrenheit.

E. Special care shall be taken during installation of balance weight assemblies to obtain correct wire temperature and travel clearance for the balance weight and pulley assemblies. Preliminary tensioning of the OCS to remove initial creep shall be completed prior to finalization of the balance weight settings.

F. Lubricating grease shall be applied to pulley bearings, swivels, guideways, guide rods, and wire ropes as recommended by the manufacturer.

G. Non-Rotational stainless steel wire rope used in balance weights shall be properly seized before cutting per manufacturer's recommendation.

3.18 JUMPER ASSEMBLIES

A. Configurations of all types of jumpers shall be as shown in the Contract Plans.

B. Jumper wires shall have cut and tied (using eight wraps of soft copper wire and twist end together to prevent unraveling of conductor) ends projecting not more than 1/2 inch through open clamps.

C. Continuity jumpers in auto-tensioned catenary shall be of a length and configuration appropriate to accommodate the anticipated differential movement of the conductors. The formulae used to establish lengths of jumpers shall be based on actual field measurements.

D. In all cases, jumpers shall be installed and trained so as to avoid conflicts with the pantograph, adjacent cantilever, and hanger assemblies.

E. Each section of the jumper, messenger, and contact wires that will be covered by a Jumper assembly clamp shall be cleaned with a wire brush and lubricated with oxide inhibiting highly conductive joint compound (Burndy Penetrox E, or approved equivalent), immediately prior to making connections, in accordance with the grease manufacturers recommended installation methods.

F. Connectors shall be as shown on the Contract Plans and shall be installed in accordance with the manufacturer's recommendations.

G. Bolts in bolt-type connectors shall be lubricated with oxide inhibiting highly conductive joint compound (Burndy Penetrox E, or approved equivalent), and torqued to the bolt manufacturer's recommendations, using a calibrated torque wrench.

H. Equalizing and full feeding jumper assemblies shall be installed with the cut ends facing away from approaching trolley traveling in the normal direction as shown on the Contract Plans. Jumpers shall be shaped and supported to reduce resistance to contact wire uplift. Full feeding jumpers in overlaps shall have the messenger wire clamps on adjacent messenger wires located in line perpendicular to the tracks at an ambient temperature of 80 degrees Fahrenheit and have not less than 5 feet of jumper wire between the clamps to provide sufficient length for differential movement of the catenary suspension systems. Jumpers shall be formed to ensure adequate clearance to the dynamic pantograph is maintained under all conditions of operation.

3.19 INSTALLATION OF INSULATED CABLES

A. Insulated cables shall be installed in underground ducts, handholes, manholes, and in above-ground feeder risers and conduit where shown on the Contract Plans.

B. Watertight vertical cable support bushings shall be provided at feeder cable spouts of the OCS poles and inside all vertical pull boxes.

C. Care shall be exercised in pulling cables in conduit to avoid kinking, putting undue stress on the cable, compressing, distorting or otherwise abrading cable insulation. A lubricating compound shall be used while pulling cables. Cable pulling tension applied during the pulling process shall not exceed the manufacturer's written recommendations. Rollers, jam and quadrant blocks shall be utilized as required to facilitate cable installation.

D. Cables in the manholes shall be supported by galvanized steel hangers, racks and insulated chairs, spaced a maximum of 3 feet apart. Splices, where required, shall be supported on

both sides of the joint. Negative and positive cables shall be installed in separate manholes. Furnish and install all required cable and splice supports.

E. Cables shall be suspended from cross-span wires and cantilevers as shown on the Contract Plans. All cables, supported on a cantilever arm, pole or span wire shall be wrapped with two wraps of 2 inch wide neoprene and secured by ¾ inch stainless steel banding over the neoprene, every 3 feet. Cable ties will not be allowed.

F. Install terminations at manholes and pole-mounted non-load-break switches as required. Terminations shall be made using the appropriate termination kits, including shrink tubing over the cable end and termination to prevent water from entering the cable.

G. Inspection and Tests: An insulation test shall be performed at 5 kV DC and the results recorded and submitted to the Engineer, as specified in Section 34 23 83, OCS Testing.

3.20 INSTALLATION OF GROUNDING AND BONDING SYSTEMS

A. Grounding and bonding shall be as shown on the Contract Plans and as specified in Section 34 23 46, Grounding and Bonding of OCS Assemblies.

B. Bonding between poles and pole foundation shall be installed as shown on the Contract Plans.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished OCS Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished OCS Material.

B. Full compensation for furnishing and installing OCS Installation as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 23 83
OCS TESTING

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. The Work described in this Section includes the preparation of test plans, test procedures, supply of testing equipment, factory and field testing of the OCS, and development of test reports.

B. Section Includes:

1. Preparation of test plans
2. Preparation of test procedures
3. Supplying testing equipment
4. Factory and field testing of the OCS, and
5. Test reports

C. Related Sections:

1. Section 01 00 00 –General Requirements

1.02 REFERENCE STANDARDS

NOT USED

1.03 SUBMITTALS

A. Submittals shall comply with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Test Program Plan: Submit a Test Program Plan for approval by the Engineer. The purpose of this plan is as follows:

1. Ensure that all of the testing requirements contained in this and other Sections of the Specifications that cover OCS are considered and planned for in the Test Program Plan. Fully cover the range, depth, and required technical aspects of OCS tests to be conducted.
2. The Test Program Plan shall contain as a minimum the following data:

a. A flow diagram showing the logical sequence of tests, starting with factory tests and concluding with field demonstration tests making sure to cover each step in between.

b. A list of test procedures to be submitted, preliminary submittal schedule, a preliminary schedule of tests, and a brief description of each factory and field test. The schedule portion of the program plan shall be a dynamic document that shall be updated as the program progresses.

c. An outline, detailed format of the procedures and test data sheets for each type of test.

d. Recommendations for the Engineer on which tests to witness.

e. A description of in-plant factory and field test organizations.

f. A detailed Safety Program defining all precautions to be taken, notices, signs and barriers to be posted concerning the safety of the public, work personnel, and equipment. The Safety Program shall define precautionary measures to be taken prior to, during, and following the test until such time as normal work is resumed.

C. Test Procedures: After approval of the Test Program Plan, submit Test procedures to the Engineer for approval at least 60 days in advance of the scheduled tests. The test procedure shall include, as a minimum:

1. Objective and scope
2. Prerequisites
3. Safety measures
4. Test set-up and test equipment to be used
5. Personnel required for the test
6. Estimated duration of the test
7. Pass/fail criteria and samples of data sheets to be used

D. All tests must be performed in accordance with the approved test procedures. Any deviations require prior approval of the Engineer.

E. Test Reports: Test Reports shall be submitted to the Engineer for approval 10 days after completion of each phase of testing. Test reports must contain all the data obtained during tests, an analysis of the data, and conclusions relating to the test pass/fail criteria outlined in the test procedure. A test that fails must be repeated and any corrective action necessary to pass the re-test must be outlined in a new test report.

F. Types of Tests: The following commissioning tests shall be included in the Test Program Plan:

1. Acceptance Measurements
2. Visual Inspection of Completed OCS
3. Clearance Envelope Tests for Pantograph
4. OCS System Electrical Tests
5. Integrated Tests
6. Traction Electrification System Electrical Tests

G. Submit data on all height and stagger gauges and all other equipment used for Acceptance Measuring.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish the height and stagger gauges, and all other equipment necessary to record the Acceptance Measurements. All measuring equipment proposed for use shall be approved by the Engineer before use. Furnish two height sticks (Hastings E-35, or approved equal) with carrying case and furnish two contact wire height and stagger measurement laser, RRT-4640, or approved equal.

PART 3 – EXECUTION

3.01 ACCEPTANCE MEASUREMENTS

A. Upon completion of each OCS segment of construction, measure the catenary messenger and contact wire height, stagger, and other required dimensions and record the readings on the approved Acceptance Measurement Form in the presence of the Engineer.

B. Acceptance measurements shall be scheduled in advance with the Engineer, and shall only be made in times of dry weather, with either steady sunshine or continuous cloud cover, and winds less than 10 mph. Taking acceptance measurements during widely fluctuating weather conditions shall be avoided.

C. Prepare an Acceptance Measurement Table and include the following information:

1. Track designation.
2. Wire run number as shown on the OCS Layout Plans of the Contract Plans.
3. Drawing number(s) where the catenary structures of the wire run are shown.
4. Name(s) of person(s) responsible for performing the acceptance measurements.
5. Sheet number of a wire run set.
6. OCS Equipment type or style being measured.
7. Temperature of the messenger and contact conductors in degrees Fahrenheit during the time of measurement.
8. Weather conditions during time of measurement (e.g., ambient temperature, cloudy, sunny, humid).
9. The date the measurement was made.
10. Station location of the structure in feet in reference to track stationing as shown on the Contract Plans.
11. Horizontal distance of the OCS pole to the closest served adjacent track centerline(s) (perpendicular to track) measured from the inside running edge of the nearest rail to the face of the OCS pole (add 2 feet 4 1/4 inches to the measurement for the track centerline).
12. Actual track super-elevation: Cross-level difference of the two rails measured for the OCS structure station.
13. Stagger: Lateral distance measured at the OCS structure from the contact wire position to the vertical or super-elevated centerline of the track.

14. Contact wire height at the support: The vertical distance the contact wire at the OCS structure measured from the mean rail level.

15. Actual track super-elevation at mid-span: The same as item 12 except measured at mid-span.

16. Mid-span offset: Lateral distance between the contact wire and the vertical or super-elevated centerline of the track measured at mid-span.

17. Contact wire height at mid-span: The same as item 14 except measured at mid-span.

18. The average of the contact wire heights at the adjacent OCS structures at each end of the span minus the contact wire height at mid-span.

19. Gradient: The rate of change of contact wire between the OCS structures. This is equal to the difference of contact wire heights at each structure divided by the span.

20. System height: Vertical distance measured at the OCS structure between the contact wire and the messenger wire.

21. Position of counterweight stack, being a rise or fall of balance weight from median position.

22. Positions of balance weight stops at ambient temperature.

23. The vertical distance between the closest member underside of the tunnel/bridge and the vertical or super-elevated centerline of the track measured at low point of tunnel/bridge, each tunnel/bridge face and center.

24. Electrical clearance from messenger or contact wire support to closest member underside of tunnel/bridge with uplift force of 25 lbs. on the contact wire at the point of measurement measured at each tunnel/bridge face and mid-point of tunnel/bridge.

25. Height of in-running and out-of-running contact wire above rail at overlaps, crossover and turnouts referenced above mean rail level at each OCS structure.

26. Clearances between in and out of running wires, overlap distances, transition points at crossovers, section insulators.

27. Key comments or remarks as required.

D. The Engineer will use the Acceptance Measurements to determine compliance with the OCS design and the necessity for any corrections to be performed.

E. All corrections shall be executed at no further cost to MTS.

F. After execution of corrections, re-measure and record affected data and submit the results to the Engineer.

G. Completed Acceptance Measurements Tables shall be submitted in accordance with Article 1.03.

3.02 VISUAL INSPECTION OF COMPLETED OVERHEAD CONTACT SYSTEM

A. At Contact Wire Level , the following checks shall be made in the presence of the Engineer, and any unsatisfactory conditions detected shall be promptly corrected. The Contractor shall make its hi-rail bucket truck or rail-mounted platform truck available for the Engineer's use in making its observations at no additional cost.

1. Check fit of components and tightness (torque) of 5 percent of fasteners in each section offered for inspection. If any torque is found to be incorrect, a further 5 percent shall be checked in that section. Any additional torque discrepancies shall result in the need to check all torque settings in that inspection section.
2. Check security of split pins and locknuts.
3. Check contact wire for kinks, rolls, and visual damage.
4. Check messenger wire for damage to strands.
5. Check for correct steady arm fittings.
6. Check heel settings.
7. Check that jumpers are of correct type, have adequate travel capability, are properly fitted, are pointed in the correct direction, and are well formed so as to prevent a hard spot and avoid fatigue failure.
8. Check posture of BWA pulleys, yoke plates and safety slings.
9. Check that all hinged fittings have freedom to move under load.
10. Check that a wire passing through a cantilever and not attached to it will clear any part of this cantilever by at least 3 inches throughout the auto-tensioned (AT) operational range 20 degrees Fahrenheit to 130 degrees Fahrenheit.
11. Check for adequate electrical air clearance and insulation between adjacent or crossing OCS wires.
12. Check all OCS support and structure installations for locations of possible interference with passage of pantographs, including spots where pantographs could tangle with wires or suspension assemblies.

B. From ground level, the following checks shall be made in the presence of the Engineer:

1. Check that balance weight stacks are positioned correctly (vertically), have freedom to travel and that balance weights do not bind, rub or hit the outside surface of the OCS pole.
2. Check that cantilevers and pull-off assemblies have correct along-track offset.
3. Check that all OCS hanger assemblies are complete, uniform and plumb, and installed within design position.

3.03 CLEARANCE ENVELOPE TESTS FOR PANTOGRAPH

A. General: The purpose of these tests is to verify the clearances of the light rail vehicle (LRV) pantograph unit on each section of the system. The tests shall be conducted after all track and OCS installations are complete and after the Acceptance Measurements have been

made, recorded and approved by the Engineer. Any section found to have insufficient clearance shall be adjusted to provide the required clearance. Repeat Acceptance Measurements in the affected section.

B. Pantograph Clearance Envelope: Tests shall be performed initially with a rail mounted height and stagger gauge having the same dynamic profile as MTS' light rail vehicle pantograph. This gauge shall be used to verify the clearances between the pantograph and OCS components such as the heels of steady arms and contact wire clamps. The clearance tests shall be performed with the Engineer present.

3.04 OCS SYSTEM ELECTRICAL TESTS

A. Circuit Continuity and Loop Resistance:

1. General: The purpose of this test is to obtain the actual installed DC loop resistance of each OCS electrical section. This test checks both the OCS and the rail return system for electrical continuity and verifies the absence of high resistance connections or inadvertent ground connections.

2. Procedures: The test entails short circuiting a discrete section of the OCS by connecting the OCS to the running rails at one end, and applying a DC voltage at the other end. The length of section under test should be the distance between 2 adjacent electrical sections, substations and disconnect switches, of the OCS. The test shall be carried out in the following steps:

   a. Feeders which are electrically connected to the OCS shall be disconnected to the OCS prior to the test.

   b. A DC source is required which will provide a current of nominally 100 amperes, under load, with an applied voltage of 24V (e.g., 2 automotive batteries in series).

   c. Measurements shall be made of the DC voltage and DC current, and the circuit resistance is then calculated from the measured values of voltage and current. This resistance shall be compared with the design value that will be provided by the Engineer based on acceptable test values on previously tested similar OCS/rail sections of MTS' light rail system.

   d. Any section having a discrepancy of more than 20 percent between the design value, to be provided by the Engineer, and the field test measured value shall be rechecked to ensure that all electrical connections are correctly made, and that there are no inadvertent ground connections to the OCS which are effectively reducing the total length of the loop.

   e. The following items shall be recorded for each OCS test section:

      1) Location and length of test section (miles)

      2) DC Volts

      3) DC amps

      4) Ohms

      5) Ohms/mile

3. Precautions: The tests required for the loop resistance require passing relatively high DC currents through the OCS and rails. Proper regard must be paid to safety. Test zones shall be clearly identified. All safety requirements established in the Safety Program concerning the public, work personnel and equipment shall be strictly enforced. Personnel not directly associated with the tests should be clear of the tracks. The section of OCS, associated feeders and return rails under test shall be ungrounded, de-energized and completely isolated from the adjacent electrical sections of the system.

B. Hi-Pot Insulation Testing:

1. General: DC Hi-pot test shall be performed on discrete sections between 2 adjacent electrical sections, substations and disconnect switches, of the OCS. The Hi-pot tests serve the following purposes:

   a. Components such as insulators and feeders are checked for leakage.

   b. The electrical withstand of minimum clearance areas, such as at overhead bridges, are verified under static conditions.

   c. The electrical withstand of section insulators and disconnect switches are verified.

   d. The test provides a new OCS performance basis and a baseline reference value for periodically checking for any reduction in the insulation level of the OCS sections, by comparing voltage and leakage current with the previously measured values.

   e. A nominal DC hi-pot voltage of 2.5 kV shall be used for testing the new OCS installation. For hi-pot tests which involve applying voltage on the existing catenary, a reduced test voltage of 1.5 kV shall be used. Hi-pot tests shall be carried out on the OCS sections as soon as possible after the continuity tests have been completed, in order to ensure that all of the section being tested is electrically continuous and is subjected to the test voltage. Leakage currents between 0 and 5 mA can be expected for test section lengths of 1 to 2 miles.

2. Procedure for Main Line Tracks: Adjacent OCS sections not under test which are electrically isolated from the section under test shall be grounded by directly connecting the OCS to the rails. All lightning arresters shall be disconnected from the section under test. A DC test voltage shall slowly be applied to each OCS section until the final test voltage is reached. Upon reaching the final test voltage, it shall be held steady for 60 seconds. The leakage current at the final test voltage shall be measured and recorded together with the weather conditions and temperature.

3. Precautions: The hi-pot measurements require application of high voltage to the OCS. Proper regard must be paid to safety. Test zones shall be clearly identified. All safety requirements established in the Safety Program concerning the public, work personnel and equipment shall be strictly enforced. Personnel not directly associated with the tests should be clear of the tracks. Sections of OCS and associated feeders under test shall be isolated from the adjacent sections of the system, and all OCS sections adjacent to the section under test shall be grounded.

3.05 INTEGRATED TESTS

A. Following the successful testing of the Traction Electrification System as specified in this Section, assist MTS in performing integrated tests with other LRT systems (signals, traction power, vehicles, etc.) by assisting with powering/isolating traction power substations and the OCS for tests.

B. Section Proving:

1. Section Proving is a process of verification of the correct connection and isolation of each electrical segment of the OCS.

2. Contractor shall verify that:

a. TPSS feeder breakers are connected to the correct OCS section and not to any other OCS section.

b. Disconnects and load break switches connect only the correct sections of OCS together and are not connected to any other OCS section.

c. OCS sectionalization, provided through section insulators and/or insulated overlaps, ensures isolation of one OCS section from all other adjacent OCS sections.

3. The means of testing shall be through the energization of the OCS from traction substations and the applicable opening and closing of circuit breakers, load breaks and disconnect switches. Contractor shall prove that appropriate sections of OCS are energized and de-energized by means of OCS voltage detection equipment. Any section of OCS that should be de-energized, but is found to have a voltage of 50 volts or greater will be deemed to have failed.

C. Pantograph tests on the OCS, also known as “Dead Car Pull Tests”, shall be performed during integrated testing using a light rail transit vehicle, that is supplied by MTS, with the pantograph in normal contact with the de-energized contact wire. These tests are to assure a smooth, shock-free passage of the pantograph, especially at turnouts, section insulators, overlaps and locations where the wire height changes. Particular attention will be focused on wire takeover at overlaps, turnouts and crossovers, and the lack of hard spots at all locations. Any adjustments required as a result of these tests shall be performed at no expense to MTS. Once the “Dead Car Pull Tests” are completed, and any required corrections are made, MTS will operate a light rail vehicle on the energized overhead contact system at various speeds and directions to verify the OCS performs as required and to confirm that there is no unusual arcing at any locations on the catenary system. Any corrections/ repairs deemed necessary by the Engineer will be performed immediately.

D. After the successful completion of the “Dead Car Pull Test” and any resulting punch list items, video-tape the new OCS in its entirety, by means of a video camera mounted on the roof of an LRV during a live train test run, and furnish two (2) copies of the video to the Engineer.

E. Operate and maintain the OCS System until the final approval by the Engineer for revenue service.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurements will be made for the requirements of this section.

4.02 PAYMENT

A. Full compensation for furnishing and installing OCS Testing as specified in this section shall be included in the contract lump sum price paid for Overhead Catenary Work, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 34 42 01

TRANSPORTATION SIGNALING AND CONTROL

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section consists of a general description of the Work, procedures, and requirements necessary for the planning, designing, manufacturing, installing, removal, relocation, modification, testing, placing in service and documenting as-built conditions, and warranty support for various signaling, communications and highway-rail grade crossing systems to be provided or altered by the Contractor. The Work shall consist of, but is not limited to:

1. The Contract Plans represent a detailed design utilizing Owner Furnished Signal Instrument Enclosures, systems, components and materials that meet the specifications. The Contractor may provide equivalent systems, components, and materials subject to the approval of the Engineer and as specified herein. Any modifications required for the equivalent systems to meet the functional and safety requirements of this Specification are the Contractor's responsibility and therefore no additional compensation shall be paid for this Work.

2. The manufacture, delivery, installation, testing and operations of the interlocking, block signaling, highway crossing warning, and cable transmission systems as shown on the Contract Plans and specified in these Specifications.

   a. The interlocking and block signal system includes track circuits, switch and lock movements, wayside color light signals, relays, train-to-wayside communication (TWC) equipment, vital logic controllers, wayside cabling, AC meter drops or meter services, batteries, chargers and associated materials, equipment enclosures and subsystems as shown on the Contract Plans and specified in these Specifications.

   b. The highway crossing warning system includes the following: warning devices, AFO track circuits, vital logic controllers, nearside crossing control equipment, nearside crossing indicator, wayside cabling, equipment enclosures, relay logic, batteries and chargers and associated materials, connection with traffic controller cabinets, equipment appurtenances and subsystems as shown on the Contract Plans and specified herein.

   c. The cable transmission system that will interface the enclosures includes fiber optic cable, ethernet switches, media converters, fiber patch cords, fiber closet connector housing fiber termination cassettes with panels, and subsystems as shown on the Contract Plans and specified herein.

3. The Contractor shall supply all new components (unless a component is identified as Owner furnished) for the above systems and complete all work necessary to provide satisfactory performance of a complete, safe, and operable block signaling and highway crossing warning system.

B. Related Sections:

1. Section 01 00 00, General Requirements

2. Article 3.10, Shop Drawings, of the General Conditions

3. Section 34 42 – Transportation Signaling and Control of these Specifications, as applicable:

   a. Section 34 42 02 – Spare Parts

   b. Section 34 42 13.13 – General Railway Signal Requirements

   c. Section 34 42 13.14 – Route Control Equipment

   d. Section 34 42 13.15 – Battery and Charging Equipment

   e. Section 34 42 13.17 – Track Circuits

   f. Section 34 42 13.18 – Instrument Enclosures

   g. Section 34 42 13.19 – Signal System Grounding

   h. Section 34 42 13.20 – Relays

   i. Section 34 42 13.21 – Miscellaneous Signal System Products

   j. Section 34 42 13.22 – Switch and Lock Movement

   k. Section 34 42 13.24 – Wayside Signal Assembly

   l. Section 34 42 13.25 – Rail Bonding

   m. Section 34 42 13.26 – Highway Grade Crossing Warning Systems

   n. Section 34 42 13.27 – Painting and Galvanizing

   o. Section 34 42 13.28 – Block Signaling and Highway Grade Crossing Warning Systems Testing

   p. Section 34 42 13.29 – Abandonment, Demolition, Removal and Disposal of Existing Signal Systems Facilities

   q. Section 34 42 16 – Train Control Wire and Cable

   r. Section 34 42 19.01 – Vital Logic Controller

   s. Section 34 42 23 – Railway Control Equipment

   t. Section 34 42 26.13 – Signal System Fiber Optic Network

   u. Section 34 42 62 –Service Meters

1.02 REFERENCES

A. Abbreviations and Acronyms

1. AFO – Audio Frequency Overlay

2. Alstom – Alstom SA

3. AREMA – American Railway Engineering and Maintenance-of-Way Association

4. C&S - Communications and Signals

5. CA MUTCD – California Manual on Uniform Traffic Control Devices
6. CFR – Code of Federal Regulations
7. CPUC – California Public Utility Commission
8. FRA – Federal Railroad Administration
9. G.O. – General Order
10. Hitachi – Hitachi Rail
11. MTS – San Diego Metropolitan Transit System
12. NEC – National Electrical Code
13. NEMA – National Electrical Manufacturers Association
14. NFPA – National Fire Protection Association
15. SDTI – San Diego Trolley, Inc.
16. Siemens – Siemens Mobility
17. TWC – Train-to-Wayside Communications

B. Reference Standards

1. In addition to the Regulations and Code requirements specified in this Section, materials and equipment for the block signaling system and the highway crossing warning system shall conform to the latest recommendations of the AREMA Communications and Signals (C&S) Manual and applicable SDTI standard circuit plans. The compatibility shall include form, fit and function of block signaling and highway crossing warning systems.
2. CPUC, General Orders (G.O.):
    a. G.O. 26-D – Clearances on Railroads and Street Railroads as to Side and Overhead Structures, Parallel Tracks and Crossings
    b. G.O. 52 – Construction and Operation of Power and Communication Lines for the Prevention or Mitigation of Inductive Interference
    c. G.O. 75-D – Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings
    d. G.O. 88B – Rules for Altering Public Highway-Grade Crossings
    e. G.O. 95 – Overhead Electric Line Construction
    f. G.O. 118-A – Construction, Reconstruction and Maintenance of Walkways and Control of Vegetation Adjacent to Railroad Tracks
    g. G.O. 128 – Construction of Underground Electric Supply and Communication Systems
    h. G.O. 143-B – Design, Construction and Operation of Light-Rail Transit Systems

i. G.O. 164-E – Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems

3. Code of Federal Regulations (CFR), Title 49, Transportation:

a. 49 CFR Part 212 – State Safety Participation Regulations

b. 49 CFR Part 214 – Railroad Workplace Safety

c. 49 CFR Part 218 – Railroad Operating Practices

d. 49 CFR Part 219 – Control of Alcohol and Drug Use

e. 49 CFR Part 228 – Hours of Service of Railroad Employees

f. 49 CFR Part 234 – Grade Crossing Safety

g. 49 CFR Part 236 – Rules, Standards, and Instructions Governing the Installation, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances

4. California Department of Transportation (Caltrans):

a. California Manual on Uniform Traffic Control Devices (CA MUTCD) – California Supplement, Part VIII, Traffic Controls for Railroad and Light Rail Transit Grade Crossings

5. National Fire Protection Association (NFPA)

a. NFPA 70 – National Electrical Code

1.03 ADMINISTRATIVE REQUIREMENTS

A. The Contractor shall coordinate system installation and testing with SDTI. SDTI systems shall remain fully operational at all times unless approved by the Engineer.

B. The Contractor shall be represented at all meetings held with the Engineer where construction work may affect signal systems or where signal systems shall be discussed by a Signal Engineer qualified in the design and application of the signal equipment the Contractor will install and commission on this project.

C. The Contractor's Signal Engineer shall participate in Factory Acceptance Testing (FAT) of 8 separate Segments of Owner Furnished Signal Instrument Enclosures for release and delivery of enclosures to Contractor. FAT testing will be held in Williamsburg, VA. Contractor shall be responsible for receipt, handling, storage, field installation, testing and commissioning of the Signal Instrument Enclosures.

D. The Contractor's Signal Engineer shall participate in FAT of 8 separate Segments of Owner Furnished Signal Instrument Enclosures to observe demonstration and testing of Owner Furnished Vital Application Software for release and transmittal of software to Contractor for each Segment signal cutover. FAT testing will be held in Williamsburg, VA.

E. The Contractor shall coordinate with MTS to finalize Temporary Interface Case #1 and #2 configurations to support systems phasing of the project in eight (8) successive Segments. In alignment with the Contractor's approved Construction Schedule, the Engineer will provide:

1. Detailed circuit drawings for all modifications to existing systems and temporary interfaces between existing systems and new systems for each Segment.

2. Owner Furnished Vital Application Software to support the phasing conditions while constructing each Segment.

F. The division of the work for the Temporary Interface Cases are as follows:

1. Two Temporary Interface Cases (TIC) are part of the Owner Furnished Signal Instrument Enclosures and shall be accepted by the Contractor's Signal Engineer at FAT.

2. During construction, MTS will provide the Contractor with TIC Wiring Diagrams and a phasing version of the MTS Owner Furnished Software for each Segment interface point.

3. Contractor shall furnish and install wire within the TICs and connect existing or new field wiring.

4. Contractor shall pretest, test and commission the TICs.

5. Contractor shall remove, salvage and rewire TICs for the next location designated in the construction phasing plan.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements and other Sections within the Specification group 34 42, Transportation Signaling and Control and shall include the following:

1. Plans, procedures, data sheets of proposed material, installation details, shop drawings, mechanical drawings, proofs of compliance with applicable standards and any other pertinent data required to fully demonstrate the Contractor's proposed plan for the manufacture, installation, testing and maintenance of the various systems. The Contractor shall provide submittals as indicated in the applicable technical specification section and any proposed design changes.

2. All Systems Construction shall be planned, documented and submitted by the Contractor for MTS approval in accordance with Article 1.08, Work Plans of Section 01 00 00, General Requirements. Systems work descriptions shall include a step-by-step sequence which identifies those steps during which the existing system will be disabled, and a description of what steps will be taken to ensure that the signal system will be tested and returned to full operation without causing a delay to any train movement.

3. The Contractor shall submit a detailed Test Plan for all systems a minimum of 90 calendar days in advance of testing Segment 1. The Test Plan shall define tests and locations within each Segment. Test Procedures for placing any system or subsystem in service, shall be submitted a minimum of 45 calendar days in advance of the planned work. Test Procedures shall reflect the latest revisions and changes approved by the Engineer and made as a result of field checks and conditions. The Contractor shall not proceed with in-service testing until the Test Procedures are approved by the Engineer.

4. The Contractor shall submit revisions to existing circuit plans using the "Red In" / "Yellow Out" convention to show changes. "Deletions" shall be identified by

highlighting the modification with Yellow and “Additions” shall be identified by use of red-colored symbols and text.

5. A minimum of 30 calendar days prior to placing any system in service, the Contractor shall submit to the Engineer one (1) electronic set of installation, operating and maintenance manuals of all Contractor furnished equipment and systems under this Contract.

6. Each Owner furnished signal instrument enclosure will include a complete set of operating and maintenance manuals/instructions for all equipment within the enclosure that will be programmed, configured, or adjusted. These documents shall remain or be placed in the enclosure prior to the system or subsystem being placed in operation.

7. Manufacturers’ warranties, instruction sheets and parts list for Contractor furnished materials used in the work, shall be delivered to the Engineer prior to acceptance of the project. All equipment, and material warranties and guarantees shall cover parts and labor for two years from the date the equipment is “placed in service.”

8. After a location is placed in service and before Contract acceptance of the Orange Line Improvement Project, Phase 2, the Contractor shall submit as-built documentation as follows:

   a. Red line detailed circuit drawings within 3 calendar days.

   b. The Contractor shall submit one (1) set of as-built (red line) corrections to the Engineer. In addition, one (1) set shall be placed in each enclosure affected.

9. The Contractor shall submit certified test results for all phases of testing in conjunction with in-service tests.

B. All submittals required within Section 34 42, Transportation Signaling and Control shall be signed by the Contractor’s Signal Engineer.

1.05 QUALITY ASSURANCE

A. The Contractor shall be responsible for adherence to all referenced 49 CFR rules and reporting requirements, including those regulations which require pre-employment drug testing, random drug testing and reporting, tracking hours of service of employees engaged in the installation and testing of signal facilities, and the reporting and tracking of employees injured in the performance of work on the railroad.

B. The Contractor shall perform and document all tests and inspections in accordance with 49 CFR regulations, the AREMA C&S Manual, and these Specifications.

C. All submittals, materials, equipment, manufacturing methods, system installation, testing and construction workmanship specified in the Specifications Group 34 42, Transportation Signaling and Control shall conform to the requirements specified in: Article 1.05 of this Section; Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing; and various other related Sections contained herein.

D. No circuit or system is considered to have met the requirement of these Specifications for function and safety until it has been properly tested and verified in the field. Any circuit modifications made to meet the functional and safety requirements of this Specification

shall be considered as a part of the Contractor's responsibility and therefore no additional compensation will be paid for this Work.

E. Signal Personnel Qualifications:

1. The Contractor shall assign experienced and qualified staff as key Signaling personnel for this Work. The Contractor shall not replace key staff members without prior approval from the Engineer. Key employees of the Contractor engaged in the installation, adjustment and testing of the various systems shall be qualified and have had experience on an operating transit system in the type and level of systems installation and testing work as required herein. At a minimum "key employees" shall include the Contractor's Signal Engineers, Signal Supervisor, Construction Foreman, and Lead Wire person. Additional experienced personnel shall be provided by the Contractor for testing and placing systems in operation. The Contractor shall submit resumes for the "key employees" to the Engineer. The Engineer's decision concerning the candidate's qualifications shall be final. The Contractor shall propose alternate personnel if the original candidate(s) is found to be unacceptable. No signaling related work shall begin prior to the Contractor's "key employees" being approved by the Engineer.

2. The Contractor's systems construction forces shall work under the supervision and direction of an approved Signal Supervisor. The Contractor's Signal Supervisor shall oversee the installation, adjustment, and testing and commissioning of signal related work. The Contractor's Signal Supervisor shall be within the project limits whenever signal related work or whenever roadway or track construction work is in progress in the vicinity of existing wayside signaling equipment, highway-rail grade crossings and/or cabling.

3. The Contractor's Signal Engineers shall direct and certify the successful completion of all tests on equipment and systems prior to releasing the systems for operation. The Contractor's Signal Engineers are responsible for ensuring that all applicable test documentation is completed prior to, or immediately after, inservice testing is completed.

4. The Contractor's Signal Engineer shall be on-site or readily available whenever signal work is in progress on the railroad right-of-way. Whenever civil and track construction activities have the potential to disrupt in-service signal systems, the Contractor's Signal Engineer or Signal Supervisor shall either be on-site, or at a minimum, be readily available to support the work. Readily available shall be interpreted to mean that the signal engineer can be on-site within approximately 1 hour. Where multiple work shifts or rest periods impede the Signal Engineer's ability to be on-site as required, additional qualified personnel shall be submitted for approval. This also includes cut-over testing where multiple Signal Engineers are needed to complete the required testing.

5. The Contractor's proposed Signal Engineers shall demonstrate experience in the philosophy, application, and testing requirements of the various systems, including vital railroad signal systems. The Contractor's proposed Signal Engineers shall have a minimum of 10 years signal supervisory or management experience on a major transit or commuter system in the United States. The proposed Signal Engineers shall also demonstrate knowledge of the governing CPUC and FRA rules and regulations. This demonstration shall be by interview

of the proposed Signal Engineers by the Engineer prior to commencement of any signal-related work. The Engineer's decision concerning the candidate's qualifications shall be final. The Contractor shall propose alternate personnel if the original candidate is found to be unacceptable. No signaling related work shall begin prior to the Contractor's Signal Engineer being approved by the Engineer.

6. The Contractor's proposed Signal Supervisor(s) shall demonstrate knowledge and experience in the installation and maintenance of the various systems to be installed. The proposed Signal Supervisor shall have a minimum of 5 years signal supervisory experience on a major transit or commuter system in the United States. The Contractor's Signal Supervisor shall demonstrate the proper methods and procedures required to adjust, inspect, and test the signaling and highway warning systems and subsystems. This demonstration shall be by interview of the proposed Signal Supervisor by the Engineer prior to commencement of any signal related work. The Engineer's decision concerning the candidate's qualifications shall be final. The Contractor shall propose alternate personnel if the original candidate is found to be unacceptable. No signaling related work shall begin prior to the Contractor's Signal Supervisor being approved by the Engineer.

7. The Contractor shall provide a Field Engineer. The Field Engineer shall maintain signal drawings and test documents. The Field Engineer shall be proficient with CADD and coordinate work with the Contractor's Signal Engineer and Signal Supervisor. The Field Engineer shall be responsible for the following:

   a. Maintaining up-to-date and current "redline" drawings in the instrument enclosures.

   b. Updating and distributing design files to the Engineer, the Contractor's Signal Engineer, and Signal Supervisor within 7 calendar days of any revision made to the system.

   c. Maintaining and distributing test result documentation for all systems placed in operation.

8. All Contractor field personnel shall receive safety training that includes a thorough briefing in the rules of conduct in work areas where moving trains may be present. No work shall be performed on operating systems or appliances without an SDTI representative being present.

9. Any Contractor personnel found to be acting in violation of safety or operating rules and regulations will be barred from the work site.

1.06 SIGNAL CONTRACT PLANS

A. Signal Contract Plans represent a detailed design utilizing systems, components and materials that meet the specification requirements. The Contractor may provide equivalent systems, components, and materials subject to the approval of the Engineer. The Contractor's written request for changes shall include catalog cuts, specification sheets, operating and maintenance manuals, a record of in-service dates and references and other data supporting the Contractor's contention that the system, component, or material is equal to the equipment shown on the Contract Plans.

B. The Contractor shall modify the Contract Plans as necessary to provide a complete and operating system as specified in these Specifications and as approved by the Engineer.

The Contractor's design shall utilize the symbology, nomenclature and CADD standards depicted in the Contract Plans.

C. The Engineer shall render a decision concerning the alternate systems, components, or materials within 15 calendar days of receiving the Contractor's alternate design submittal. No additional payment shall be made to the Contractor for the alternate design. Construction schedules and contract milestones shall not be modified to offset any delays incurred by the Contractor in conjunction with the alternate design effort. The Contractor shall be responsible to provide calculations for Mean Time Between Failures (MTBF) and Mean Time to Repair (MTTR) for all alternative devices.

1.07 MODIFICATION TO EXISTING DRAWINGS

A. Regardless of accuracy of MTS drawings, the Contractor shall be solely responsible for the correctness of all circuits shown on the existing plans when working at an existing location. The Contractor shall compare actual field condition with drawings provided and make any correction necessary to the drawings prior to making field modifications.

1.08 FIELD CONDITIONS

A. Existing signaling and highway grade crossing systems shall be fully operational at all times unless otherwise approved by the Engineer. The Contractor's work shall not interfere with revenue service operations and maintenance activities. The Contractor shall plan and schedule the Work accordingly and submit the work plan and schedule for approval by the Engineer. At no time shall the Contractor take the existing block signaling or highway grade crossing warning system out of service without a detailed work plan and prior approval from the Engineer.

B. The Contractor shall be responsible for providing continuous train control (also referred to as Signaling or Signals within these Specifications) and highway-rail grade crossing warning during all phases of construction. At no time shall the work of the Contractor cause delays to train operation, cause an unsafe condition to exist, or reduce the effectiveness or quality of the existing crossing warning systems. The Contractor shall submit, for approval by the Engineer, its proposed plan for providing alternate methods of crossing warning whenever an existing automatic crossing warning device is deactivated, altered, or modified in order to accommodate construction work. Alternate methods shall conform to 49 CFR, Part 234 and all Federal, State, and local ordinances.

C. Site Specific Layouts are provided for each location in the Plans to assist the Contractor with signal enclosure, retaining wall, conduit/cable, and wayside device placements. The Site Specific Layouts include engineering stationing to facilitate the Contractor's measurements to prepare a bid. The Site Specific Layouts do not depict all field conditions, wayside devices, and underground utilities. The Contractor shall verify all information and placements through potholing and by making actual measurements in the field.

D. Contractor shall protect existing cabling and, where necessary, relocate existing cabling in order to prevent damage to the cabling during all phases of Work. All relocation shall be approved by the Engineer in advance.

E. The Contractor shall be responsible to provide all temporary interfaces required to support full operation of new and existing systems until such time as the final systems are placed in full and final operation.

1.09 DELIVERY, STORAGE AND HANDLING

A. All material delivery, storage and handling shall conform to the requirements specified herein and in related sections.

PART 2 – PRODUCTS

2.01 LABELING

A. All signaling system components, assemblies and subassemblies shall be appropriately labeled so they may be readily identified as specified herein.

2.02 ENVIRONMENTAL CONDITIONS

A. All materials, equipment, product design, manufacturing methods, system installation, testing and construction workmanship shall conform to the requirements specified in Section 34 42 23, Railway Control Equipment, Part 2.01 Equipment – Environmental Parameters and as recommended in the AREMA C&S Manual.

2.03 OWNER FURNISHED APPLICATION LOGIC SOFTWARE

A. The Engineer will develop site-specific application software for the vital logic controller and will demonstrate this software during Factory Acceptance Testing in Williamsburg, VA for the Signal Instrument Enclosures of each Segment. The Contractor's Signal Engineer shall be present to witness this software demonstration. After the Signal Instrument Enclosures for a Segment are received at the Contractor's warehouse, the Contractor's Signal Engineer shall perform independent end-to-end pretesting of the software for each Segment. These tests shall be performed with all instrument enclosures interconnected as shown in the Contract Drawings and can be completed in the Contractor's warehouse or post field installation at their discretion. Upon completion of the independent end-to-end pretesting, the Contractor's Signal Engineer shall certify the software is acceptable for installation. This pretest and certification shall be completed a minimum of 30 calendar days prior to Segment cutover. For additional information, see Section 34 42 13.28, Block Signal Highway Grade Crossing Warning Systems Testing.

B. MTS shall not be responsible for any work delays that may result from software modifications made during final in-service testing and commissioning by the Contractor.

C. The Contractor's Signal Engineer shall ensure the safety-critical software pretest, installation, implementation, testing and commissioning work will achieve and maintain an acceptable level of safety in conformance with all AREMA Standards and Regulatory Requirements, including but not limited to, Title 49, Part 236 Subpart H "Standards for Processor-Based Signal and Train Control Systems."

PART 3 – EXECUTION

3.01 GENERAL

A. The Contractor shall remove and salvage or dispose of instrument enclosures, enclosure contents, wayside signals, TWC equipment, nearside indicators, switch machines, switch rods, and associated equipment hardware as shown on the Contract Plans.

B. The Contractor shall provide rail bonding as required to ensure proper operation of the signaling and traction power systems. The Contractor shall provide rail bonding, as necessary, to maintain existing systems during construction.

C. The Contractor shall install Owner furnished impedance bonds as required and shown on the Contract Plans to ensure the proper operation of the signaling and traction power systems and maintain existing systems during construction.

D. The Contractor shall perform all work and provide all documentation required to support MTS' certification that the systems furnished and installed are ready for public use in accordance with CPUC and FRA Requirements.

E. The Contractor shall furnish, install, and test all items, including cables and interfaces necessary to ensure proper operation of the block signaling and highway grade crossing warning systems. Signal instrument enclosures and equipment located therein, impedance bonds and switch machines will be Owner furnished. Signal Instrument Enclosures shall be directly shipped by Others and delivered to the Contractor's warehouse located within a twenty-five (25) mile radius of the MTS headquarters at 1255 Imperial Avenue, San Diego, CA 92101. The Contractor shall be responsible to pick up all other Owner furnished material from MTS. The Contractor shall install the Owner furnished equipment, including final installation of all components shipped separate from the Signal Instrument Enclosures.

3.02 CLOSEOUT ACTIVITIES

A. The Contractor shall record the final as-built conditions of the signal and communication systems for each location.

B. Record Drawings

1. Record drawings shall conform to the provisions of Article 3.38, Record ("As Built") Drawings, of the General Conditions. The final record drawings (Final Design "AS IN SERVICE" Signal Plans) submitted shall include:

a. An index

b. Signal Track and Profile Drawings

c. Location plans

d. Aspect Charts/Control Lines

e. Detailed wiring diagrams of equipment

f. Detailed and complete circuit drawings including fiber connections

g. Case layout plans

h. Cable plans

i. Conduit installation plans

j. Shop drawings of equipment

k. Material list

1) The materials list shall include details such as equipment supplier's names, physical and website addresses, phone numbers, and email addresses for contacts.

l. GPS coordinates of key equipment/locations as determined by the Engineer.

C. All submittals shall be accepted and approved prior to closeout.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Transportation and Signaling and Control.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished Signal Material.

B. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and transporting, installing, removing and relocating each interface case in the field for Segment Phasing Cutovers, including returning the cases, including the Phase 1 temporary interface case to MTS once the project is completed.

C. The Contract price paid per each Signal Location Complete shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals; and for all the work required in Transportation Signaling and Control, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 02
SPARE PARTS

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes the requirements for providing spare parts for railroad signal systems installed for the Orange Line Improvement Project Phase 2.

B. Spare parts are included as Contract Alternate items. MTS shall authorize individual spare part bid items at their discretion.

C. Section Includes:

1. Providing and delivering spare parts for Interlocking, Block Signaling, Highway Crossing Warning, and Cable Transmission Systems Equipment

D. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control

1.02 REFERENCE STANDARDS

NOT USED

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. The Contractor shall submit a proposed list of alternate spare parts, for approval of the Engineer, if alternate equipment is provided instead of that shown on the Contract Plans. The Engineer retains full discretion to add components and adjust the quantities shown if alternate equipment is provided. Additional components shall be at no additional cost to MTS.

1.04 QUALITY ASSURANCE

A. All spare parts shall be new, delivered in unopened cartons, and shall not have been placed in operation or used by the Contractor as temporary or permanent replacements for failed parts without authorization of the Engineer. Contents of the cartons shall be verified upon delivery by the Contractor and MTS representative.

B. All spare parts shall be the same part number as the parts placed in service.

1.05 DELIVERY, STORAGE AND HANDLING

A. Contractor shall deliver all spare parts to the MTS Yard located at 1535 Newton Avenue; San Diego, CA 92113.

B. Spare parts shall be delivered in sturdy cartons. The contents of each carton shall provide detailed information that clearly identifies the contents.

C. All spare parts listed in these Specifications shall be delivered to the Engineer a minimum of 30 calendar days prior to placing any system or subsystem in operation.

PART 2 – PRODUCTS

2.01 MATERIALS

A. The Contractor shall provide the following spare parts in the quantities specified herein:

1. Interlocking Controller Equipment

   a. 3 each - ElectroLogIXS VLC 9-Slot Chassis

   b. 3 each - ElectroLogIXS Central Display Units (CDU-2)

   c. 5 each - ElectroLogIXS Central Power Supply (CPS-3) Modules

   d. 5 each - ElectroLogIXS Vital Peripheral Master (VPM-3) Modules

   e. 5 each - ElectroLogIXS Communication Input/Output (CIO-1A) Modules

   f. 5 each - ElectroLogIXS Communications Input/Output (CIO-2A) Modules

   g. 15 each - ElectroLogIXS Vital Input/Output (VIO-86S) Modules

   h. 10 each - ElectroLogIXS Vital Lamp Driver (VLD-R16S) Modules

   i. 10 each - ElectroLogIXS Vital Track Interface (VTI-2S) Modules

   j. 5 each - ElectroLogIXS Integrated Crossing Controller (IXC-20S+) Modules

   k. 5 each - Ethernet Switch (RS900)

   l. 3 each - Ethernet Switch (RS910)

   m. 3 each - Electrified Electrocode (EC^2) E2CODE Configuration A Units Complete with Modules

   n. 1 each - HF-MAX 12V 60 AMP Charger

   o. 3 each - Wilmore Model 1675-12-24-8 DC/DC 12/24 Converter

   p. 1 each - Style ST-400-1 Transformer

   q. 2 each – Quest Local Control Panel

   r. 2 each – Vartech Monitor

2. Highway Grade Crossing System

   a. 2 each - Siemens PSO 4000 Crossing Assembly (PN7A474)

   b. 2 each - Siemens PSO 4000 Transmitter Assembly (PN7A471)

   c. 2 each - Siemens PSO 4000 Transceiver Assembly (PN7A475)

   d. 1 each - Western Cullen Hayes Model 3597 Gate Mechanisms identical to units provided with assemblies.

   e. 6 each - 12-inch Flashing Light Signal LED lamp units identical to units provided with assemblies.

   f. 1 each - HF-MAX 12V 40 AMP Chargers

g. 5 each 20 Amp Crossing Interface Panel (XIP-20B)

3. Wayside Equipment

a. 10 each - LED lamps units – RED

b. 10 each - LED lamp units – YELLOW

c. 10 each - LED lamp units – GREEN

d. 5 each - LED lamp units – LUNAR

e. 1 each - Hitachi Rail STS M23-A (N4511600535) right-hand dual control switch machines complete with mounting plates, layouts, and associated hardware.

f. 1 each - Hitachi Rail STS M23-A (N4511600536) left-hand dual control switch machines complete with mounting plates, layouts, and associated hardware.

4. Relays

a. 2 each – Track Relay PV-250 (2F-2B, 60/100Hz) (P/N Hitachi N342555814)

b. 2 each – PV-250 Base (P/N Hitachi N438689003)

c. 10 each – Relay – Biased Neutral 6FB, 500 ohm B-1

d. 10 each – B-1 Relay Base complete with installation kit, gold test nut, posts, and hardware.

5. Track Circuits

a. 2 each – Railroad Frequency Converter (P/N Behlman Electronics RR2000-100, cage code 53636)

1) Power 2000VA

2) Input 120 VAC, 1 Phase 45-235Hz

3) Output 120 VAC, 1 Phase

4) Frequency Fixed at 100 Hz

PART 3 – EXECUTION

NOT USED

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. The quantity for Spare Parts shall be measured for payment for each, delivered and verified as required in these Specifications.

4.02 PAYMENT

A. Payment for procurement of Spare Parts shall be at the item pricing shown on the Contract Bid Item List (Rail Signal Spare Parts) and shall include full compensation for procuring,

shipping, delivery, inspection, and verification of all Spare Parts as required by this Specification.

END OF SECTION

SECTION 34 42 13.13
GENERAL RAILWAY SIGNAL REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This section summarizes the design principles used for the Owner Furnished Signal Instrument Enclosures as required for complete and operating train control and highway grade crossing warning systems. The Contractor shall furnish the remaining equipment as shown in the Contract Plans to complete these systems.

B. Section Includes:

1. General railway signal requirements

C. Related Sections:

1. Section 34 42 – Transportation Signaling and Control of these Specifications, as applicable.

2. Section 34 42 01 – Transportation Signaling and Control

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. CPUC, General Orders (G.O.):

1. G.O. 75-D – Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings

C. Code of Federal Regulations (CFR), Title 49, Transportation:

1. 49 CFR Part 234 – Grade Crossing Safety

2. 49 CFR Part 236 - Rules, Standards, and Instructions Governing the Installation, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances

1.03 QUALITY ASSURANCE

A. MTS will not compensate the Contractor for correcting omissions or errors in the Contractor's design modifications, which are found during submittal review or during installation of permanent or temporary signaling system configurations at any stage of the project.

B. The design shown on the Contract Plans is compatible with the existing signaling equipment and properly interfaces with the existing light rail vehicle system. Any proposed Contractor design changes shall be compatible with the existing signaling equipment and properly interface with the existing light rail vehicle system.

C. The Contract Plans shall serve as the standard to be used for the engineering, layouts and the Contractor's interface designs. Any deviations from these requirements shall be submitted to the Engineer for approval.

D. All materials and equipment provided by the Contractor shall be new. All materials and equipment shall conform to the recommendations of the AREMA C&S Manual, except as modified in the Specifications and Contract Plans.

PART 2 – PRODUCTS

2.01 FAIL-SAFE DESIGN PRINCIPLE

A. As used in these technical specifications, the fail-safe principle shall mean that whenever an equipment failure, human error or failure to act, or adverse environmental condition affects the specified operation of a system involved with the safety of life or property, that system shall revert to a state known to be safe.

B. Failure of a circuit or equipment that results in an indication of a dangerous or restrictive condition, whether or not there is in fact actual danger, shall have met the fail-safe requirements. Conversely, a failure that results in an indication of safe or nonrestrictive condition when, in fact, a dangerous condition may exist, shall not have met the fail-safe requirements.

C. Vital applications, such as detector locking of switches, shall be based on the following principles that permit the attainment of fail-safe operation in all known or discovered failure modes:

1. Closed Loops: Fail-safe circuits shall employ the closed loop principle and shall protect against open circuits, shorts, or any combination thereof.

2. Vital Relays: Relays used in vital circuits.

3. Vital Circuits: All line circuits that energize a vital relay shall be two-wire, double-break circuits and shall be energized from an ungrounded direct current (DC) power supply. Failure of any circuit component or any combination thereof shall not result in unsafe conditions.

4. Grounds: Components or wires becoming grounded shall not cause an unsafe condition.

5. Spurious Oscillations: Any amplifier, generator, or device element, active or passive, breaking into spurious oscillations shall not cause an unsafe condition.

6. Filters: Filters used in fail-safe circuits shall be designed to prevent undesired signals from appearing at the filter output at levels that could cause an unsafe condition.

D. Equipment failures and conditions that shall be considered in producing a fail-safe design shall include, but not be limited to:

1. Relays (non-vital): Open coil, fused contacts, high contact resistance, shorted coil, armature sticking, contacts sticking, or broken spring.

2. Relay (vital or safety as defined by AREMA): Open coil, shorted coil, or high contact resistance.

3. Transformers: Open primary, open secondary, shorted turns, primary-to-secondary shorts, or combinations thereof.

4. Capacitors: Short, open, or leakage.

5. Resistors: Increase or decrease in resistance.
6. Transistors: Short, open, leakage, or loss of Beta.
7. Diodes: Short, open, or reverse leakage.
8. Coils: Open or shorted turns.
9. Loss or degradation of power sources.
10. Appearance of abnormal signal levels, electrical noise levels, frequencies and delays.
11. Effects of electrical interference.
12. Absent or abnormal input signals.
13. Opens or shorts in internal circuitry at inputs and at outputs.
14. Mechanical vibration or shock.
15. Drift or instability of amplifiers, receivers, transmitters, oscillators, switching circuits and power supplies.
16. Deterioration of contacts, connectors, terminals, solder connections, printed circuits, circuit adjusting devices and mechanical devices.

E. Fail-safe equipment proposed for vital signaling applications under this Contract shall have been proven safe with 3 years of successful railroad or transit service operation in the United States of America.

PART 3 – EXECUTION

3.01 GENERAL BLOCK SIGNALING SYSTEM FUNCTIONS

A. The design shall satisfy the following block signaling system functional requirements:

1. Provide protection against broken rail.
2. Prevent unsafe switch operation and prevent clearing of signals for opposing or conflicting routes.
3. Provide safe train separation.
4. Ensure and maintain safe train operation.
5. Design of circuits and equipment shall be fail-safe.

3.02 AUTOMATIC ROUTE CONTROL

A. The system shall automatically and safely align and lock routes through a signal interlocking and control the aspects of signals to indicate that a safe route has been established for train movement through absolute block protection. Absolute signals shall remain normally red until a route has been requested and assigned.

B. Automatic routing shall primarily be accomplished using track occupancy, but in special circumstances the Train-to-Wayside Communications (TWC) system shall be utilized.

C. The signaling system shall, at a minimum, satisfy the following sequence of events in establishment and occupancy of a route:

1. Detection of approaching train.
2. Request for clearance through blocks in advance of train.
3. Check that downstream blocks are clear.
4. Check that no opposing or conflicting traffic or Signal Block is in effect.
5. Check that electric locks in advance blocks indicate locked and that their respective switch points are aligned for main line moves.
6. Check that highway grade crossing train detection equipment is functioning.
7. Establish traffic and block in requested direction.
8. Move, lock and detect switches.
9. Establish traffic locking.
10. Clear signal.
    a. Upon occupancy of the block establish route locking.
    b. Upon clearance of the block by the train, cancel route and traffic locking.
    c. Return crossovers and turnouts to the NORMAL position for turnback moves.

3.03 BLOCK CONTROL

A. The following restrictions shall apply to block control logic, where a block is a length of track of defined limits, the use of which by trains is governed by block signals:

1. One train and one train only shall occupy a block at any one time.
2. Simultaneous clearance into a block from its opposite end or a converging route shall be prevented.
3. Block requests shall be stored in a one-stage buffer and processed as soon as clearance can be granted.
4. Block cancellation shall enable time locking. Timing shall be adjustable over a range of one to ten minutes in at least 30-second increments. Timer settings shall be calculated in accordance with the AREMA C&S Manual, Part 2.4.20.
5. Absolute block: Opposing movements shall not be allowed between interlockings.
6. All interlocking home signals in the block system shall be self-clearing upon approach of a train intending to take the respective route and block. Signal clearing shall be dependent upon the respective route and block being safe for train movement. The design shall put the cleared signal to red when a condition in advance changes to an unsafe state, such as: spur track fouled; electric lock mechanism unlocked; switch correspondence or other route conditions change to an unsafe condition; or like causes.

3.04 SIGNAL ASPECTS

A. The signal aspects shall be as shown on Contract Plans and the latest version of the SDTI Rules and Instructions for Employees.

3.05 ROUTE REQUEST AND CANCEL

A. The signaling system shall allow a Light Rail Vehicle (LRV) operator to cancel and align all routes (with the exception of turnbacks) at the signals from an LRV TWC control console. Turnbacks shall be requested by the LRV operator from the Pushbuttons.

B. The signaling system shall incorporate back-up wayside pushbutton control at each interlocking signal, which will operate in parallel with the TWC output contacts. Each pushbutton control location shall include an indication light; to indicate the routes are unlocked and available for realignment. The RED LED indication light shall be plainly visible to the operator from the cab when the car is over the TWC loop.

C. Route requests shall be initiated by the means of TWC loops, track occupancy, a pushbutton control cabinet located in the vicinity of the interlocking signal, or Central Control. TWC loops with associated interrogators and output cards shall provide information to interlockings for LRV route selection. Route selection shall be accomplished as follows:

1. The Train-to-Wayside loops shall be located as shown on the Contract Plans.

2. The signal system shall align and lock switches for the route selected if a route has not already been established for the opposing traffic. The stored route shall be processed when opposing traffic clears the interlocking.

3. When a track is “blocked” between adjacent interlockings the movement will be routed to the in-service track if no opposing route is established. The route request shall be established when the movement occupies the track circuit beyond the ABS signal in approach to the interlocking. If an opposing movement has been established the route request will be stored and initiated once the opposing movement clears the interlocking. Track blocking shall be initiated from the control panel in the interlocking enclosure or from Central Control.

4. A route established for reverse running trains shall be signal protected by a RED over YELLOW, or YELLOW over RED indication, consistent with SDTI’s signal rules. Reverse running movements shall proceed to the next interlocking and upon occupying the first track circuit in approach to the home signal, a route request shall be initiated, and the movement shall be routed to the normal running track. The home signal shall display a RED over YELLOW indication.

5. Any route request function, initiated by occupancy of an approach circuit, can be disabled from a control panel located inside the interlocking enclosure. If the approach control panel toggle switch is in the OFF position the movement must stop at the home signal and request a route from the LRV TWC control console or from the wayside pushbutton cabinet.

3.06 INTERLOCKING TRACK BLOCK MODE

A. In support of reverse running between adjacent interlockings, a TRACK BLOCK feature shall be incorporated in the system. A TRACK BLOCK may be applied at an interlocking

by selection of TRACK BLOCK key switch and the associated TRACK BLOCK toggle switch located within the interlocking enclosure.

B. Prior to clearing signal for movement, the signal logic shall ensure the following:

1. No conflicting movements have been authorized.
2. All Automatic Block Signal System (ABS) signals within the reverse running block are at STOP.
3. All hand-throw switches are properly lined and locked.
4. All crossing approach and stick logic circuits shall be checked for proper states.

3.07 SCADA INTERFACE

A. The signaling system shall support remote monitoring of all interlockings and remote route requests through each interlocking from Central Control. All data from intermediate signal and highway grade crossing systems shall be sent to an interlocking and transported back to Central Control via the SCADA interface.

3.08 HIGHWAY CROSSING WARNING

A. The Contract Plans reflect warning times as specified in California Public Utility Commission (CPUC) GO 75-D, 49 CFR Part 234 and AREMA recommended practices. The approach distances shown on the Contract Plans will provide a 20 second minimum warning time, additional time for track clearance, 2 seconds equipment reaction time and where required, additional time for traffic signal preemption. Where the approach distance is greater than that required to provide the desired warning time, for a train operating at maximum speed, the application logic shall incorporate the use of timers to delay activation of the warning and minimize the time the crossing is blocked.

B. Bell circuitry shown on the Contract Plans utilizes a contact within the gate mechanism to silence the bells once the gate is in the horizontal position. The Contractor shall inspect each crossing to determine if bells are silenced or bells are active when gates are horizontal. If bells are active, then the Contractor shall place a wire jumper bypassing the mechanism contact unless otherwise directed by the Engineer.

C. The gates shall begin to descend no less than three seconds after the lights begin to flash and shall reach full horizontal position a minimum of 5 seconds prior to train entering the crossing.

D. Opposing crossing warning directional sticks shall be checked in the block signaling circuits so that malfunctioning crossing equipment will generate a RED or restrictive signal aspect and prevent trains from entering intersection until warning devices are activated.

E. The application logic for each crossing shall ensure crossing system malfunctions cause the block signal in advance of the crossing to display its most restrictive aspect until the malfunction is corrected.

F. In the instrument enclosure at each grade crossing, crossing bypass terminals that allow maintenance personnel to disable the train detection system for each track is required. Placing a jumper wire on a crossing bypass terminal shall cause the block signals governing movement for the associated track over the crossing to display a RED aspect.

G. Loss of utility power shall not disrupt system operation for at least eight hours. Excessive battery discharge shall cause the gates to descend to the full down position. The crossing cases shall be equipped with a power off indicator visible from the outside of the case.

3.09 EVENT RECORDER

A. Systems shall record events as determined by MTS. Event recorders shall be furnished as part of the Owner furnished enclosure and installed in accordance with Part 3.1.29 of the AREMA C&S Manual.

3.10 TRAIN TO WAYSIDE COMMUNICATIONS EQUIPMENT DESIGN

A. The TWC equipment shall be compatible with the existing car-carried and wayside TWC system. Wayside interrogators transmit a 100 KHz interrogation signal through a loop antenna installed between the rails. On receipt of the interrogation signal, while the car antenna is over a loop, the vehicle-borne transponder responds with a low power signal encoded with a 19-bit message. Upon validation by the interrogator, the message is passed on to specific electronic application cards in the interrogator, which energize selected output relays or transmits a digital signal to the interlocking controller.

3.11 TWC LOOP ANTENNA

A. The TWC loop antenna shall be constructed in a figure “8” pattern, with a support structure affixed directly to the track work in open right-of-way and beneath pavement in paved areas, as shown on the Contract Plans and specified in these Specifications. Each loop antenna shall utilize the HCS-W loop installation material kit that includes cable assembly, loop converter for automatic loop tuning, and sealant. Installation shall conform with the manufacturer's recommendations.

3.12 INTERROGATORS

A. Interrogators shall provide functional information, as required.

1. Interrogators shall be configured with a loop scanner card that is located in an interrogator card slot to avoid cross-talk problems. Interrogators shall not be configured for operation with a stand-alone loop scanner unit. Interrogator will be provided with power supplies and slots for 9 application cards.

2. Interrogators will include serial (RS-232/RS-485) or Ethernet (RJ-45) communication cards and programmable decoder cards containing eight programmable outputs for control of desired functions as shown on the Contract Plans. Connect the relay outputs to perform the functions as indicated on the Contract Plans.

3.13 MANUAL ROUTE REQUEST AND CANCEL SYSTEM FOR INTERLOCKINGS

A. TWC loops with associated equipment, adjacent to each interlocking signal as shown on the Contract Plans, shall allow the operator to cancel and align routes at the signals from the LRV TWC control console. TWC shall cancel or initiate an automatic route request based on the TWC input from the light rail vehicle’s TWC unit.

3.14 CROSSING WARNING TRAIN DETECTION EQUIPMENT

A. Crossing warning systems shall utilize Audio Frequency Overlay (AFO) equipment for detection circuits.

B. Track circuit equipment shall conform to the applicable parts of Article 2.01 of this Section for electronic components.

C. Frequency assignments shall be as shown on Contract Plans unless otherwise approved by the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for General Railway Signal Requirements.

4.02 PAYMENT

A. Full compensation for General Railway Signal Requirements shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.14
ROUTE CONTROL EQUIPMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This section includes furnishing, install, configure, and test Train-to-Wayside-Communication (TWC) Equipment and Route Selectors as shown on the Contract Plans. Equipment shown mounted inside the instrument enclosure is supplied by MTS as part of the Owner Furnished Singal Instrument Enclosure. Contractor shall install the enclosure and equipment shipped loose for the enclosure as part of this Contract. All field related TWC equipment shall be provided by the Contractor.

B. Section Includes:

1. TWC Equipment and Route Selectors.

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals Manual of Recommended Practice

B. National Fire Protection Association (NFPA)

1. NFPA 70 – National Electrical Code

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Shop drawings of route selector with pushbuttons and unlock indicators.

C. Product catalog sheets for route selector pushbuttons, unlock LED, TWC wayside equipment, and route selector enclosures.

1.04 QUALITY ASSURANCE

A. The TWC equipment shall be compatible with the existing car-carried and wayside TWC system.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Owner Furnished Wayside Interrogator

1. The interrogator is Hanning & Kahl HCS-V Interrogator, Long Backplane, Part No. K1086898 and additional Relay Cards as shown in the Contract Plans

2. Wayside interrogators transmit a 100 kilohertz (KHz) interrogation signal through a loop antenna installed between the rails. On receipt of the interrogation signal, while the car antenna is over a loop, the vehicle-borne transponder responds with

a low power signal encoded with a 19-bit message. On validation by the interrogator, the message is passed on to specific electronic application cards in the interrogator, which energize selected output relays. Interrogator shall be equipped with an Ethernet communications module capable of transmitting data to the vital logic controller.

3. The interrogator shall be powered by 120 volts AC, 60 Hz source at 3 VA. The interrogator card rack shall contain space for application cards, which plug into the backplane and receive power from the interrogator power supply. Application cards shall include HCS-V-08 Relay Cards and HCS-EG Modus Gateway for Ethernet Modus TCP as shown on the Contract Plans.

4. The power-supply and ground for the serial output card shall be obtained from the back-plane of the interrogator.

B. Loop Antenna

1. The loop antenna, Hanning and Kahl HCS-R, is attached to a loop converter module for automatic loop tuning. This loop converter module is placed in a junction box (i.e. pull box in the field near the tracks) The Hanning & Kahl HCS-V Loop installation material kit shall be furnished and installed by the Contractor to support the loop antenna

2. Each loop antenna shall consist of one turn of insulated, stranded, copper wire suitable for a 30-year life in direct burial wet and dry applications, with a conductor size minimum of #12 AWG. The wire shall meet the requirements of Article 310 of the National Electrical Code. Insulation shall be type RHW, RHH, USE, or XHHW with a thickness of 45 mils.

C. Route Selector Pushbutton Stands:

1. Route selector pushbutton enclosure shall include an indication LED to indicate when the switches are unlocked and available for realignment. The indication LED shall be plainly visible to a seated LRV operator from the cab when the LRV is over the associated TWC loop.

2. Route selector enclosure shall be constructed of NEMA 4 Type 314 stainless steel.

3. Route selector stand foundations shall conform to AREMA C&S Manual, Part 14.4.1 recommendations.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Loop antennas shall be attached to the ties or in station platform as shown on the Contract Plans.

B. The Contractor shall setup, configure and test interrogators in accordance with the manufacturer's recommendations. The Contractor shall provide the necessary test equipment to perform this work.

C. SDTI shall provide coding information for each interrogator.

D. Stand-alone route selector boxes shall be installed as shown on the Contract Plans.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Route Control Equipment.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting and storing Owner Furnished Wayside Interrogators.

B. All remaining compensation for Route Control Equipment shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

C. The Signal Location Complete item for Route Control Equipment shall be determined by the location where the interrogator is installed.

END OF SECTION

SECTION 34 42 13.15
BATTERY AND CHARGING EQUIPMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes installing and testing batteries and battery charging equipment, as specified herein and as shown on the Contract Plans.

B. Section Includes:

1. Batteries
2. Battery charging equipment (Owner Furnished in Signal Instrument Enclosures)
3. Ground Fault Monitoring Device (Owner Furnished in Signal Instrument Enclosures)

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.18 – Instrument Enclosures
4. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

1.03 SUBMITTALS

A. Complete performance data of each type and size of storage battery to be furnished.

1.04 QUALITY ASSURANCE

A. Batteries and battery chargers shall be tested in accordance with the Manufacturer's standard.

B. Battery cells stored at the Contractor's facility or within an instrument enclosure shall be placed on charge within 30 calendar days of receipt. Any battery cells not on charge and stored beyond the 30-calendar day period shall be replaced with new battery cells at no additional cost to MTS. The cost associated with placing battery cells on charge shall be part of the Contractor's bid price and no additional compensation shall be paid by MTS.

1.05 DELIVERY, STORAGE AND HANDLING

A. Battery cells shall be shipped in separate containers.

B. Battery containers shall be marked with the date the Contractor received each battery cell.

C. Battery cells shall not be installed until the enclosure is set at its final location.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Batteries; EnerSys. Inc./Exide Ironclad Type extreme low maintenance (ELM) railroad signal batteries or approved equal. Contractor shall furnish and install all batteries with battery trays in the instrument enclosures.

1. Type ELM-240, 240 AH
2. Battery trays

B. Owner Furnished Battery Chargers - manufactured by National Railway Supply Inc.

1. HF-MAX 12V 400-1600W 20-80A

C. Owner Furnished Ground Fault Monitoring Device manufactured by Bender

1. IR425-D4-1

D. Equipment Details

1. Battery charging equipment shall support continuous operation of the systems.
2. Battery charging equipment shall support rated outputs with input voltage of 100 to 130 VAC at 60 hertz (Hz), single phase, two wire input.
3. Battery charging equipment shall have a reserve capacity of at least 25 percent above the calculated maximum load requirements.
4. Each charger shall be capable of providing a programmable output voltage adjustment and be equipped with dry contacts for fault detection.
5. Terminal markings for AC and DC terminals shall be permanent.
6. The charger shall provide a stabilized output voltage, temperature compensated with output current limiting. The charger shall adjust its output current automatically, according to the load and to the demand on the battery.
7. The output of the charger shall be sufficiently filtered to be compatible with the input voltage requirements of the solid-state interlocking units and all other electronic equipment provided by the Contractor for the signaling system.
8. Batteries shall be sealed and require minimal maintenance. Battery trays shall be utilized.
9. Each battery cell shall be hermetically sealed in a leak proof and spill proof casing. No electrolyte shall be lost if a battery cell container breaks or bursts. Batteries shall not release any gas, fumes, or any toxic substances when operated under normal conditions or when charged or discharged at a maximum recommended rate.
10. Batteries shall be capable of a minimum of 1,000 charge-discharge cycles to 80 percent discharge without loss of capacity. Totally discharged batteries shall be capable of being recharged to rated capacity with charging voltage of no more than 2.30 volts per cell.

11. Each battery/charger system shall have a connection compatible with the voltage range for ground fault monitoring. The alarm relay on the ground fault monitor shall have a connection to the vital logic controller. The ground fault monitor shall be equipped with a test/reset button.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Batteries shall be stored in accordance with the manufacturer's recommendation. Battery cells shall be placed on charge within 30 calendar days of receipt by the Contractor.

B. All batteries shall be installed on battery trays.

C. Install all batteries and battery charging systems as shown on the Contract Plans.

D. Furnish all mounting hardware, terminals, and terminators, etc., for mounting chargers and batteries in wayside cases, signal instrument enclosures. All batteries and associated accessories shall be installed per the earthquake requirements of San Diego region.

3.02 TESTS

Test batteries and charging systems in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing, and manufacturer's recommendations.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Battery and Charging Equipment.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting and storing battery charging equipment with the Signal Instrument Enclosures.

B. All remaining compensation for Battery and Charging Equipment shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.17
TRACK CIRCUITS

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes installing and testing Electronic Coded, and Audio Frequency Overlay (AFO) tracks circuits as shown on the Contract Plans.

B. Section Includes:

1. AFO track circuits and equipment (Owner Furnished in Signal Instrument Enclosure)

2. Electrified Electronic Coded track circuits and equipment (Owner Furnished in Signal Instrument Enclosure)

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control

2. Section 34 42 13.13 – General Railway Signal Requirements

3. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing.

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

1.04 QUALITY ASSURANCE

A. Track circuits shall meet the recommendations established by AREMA Communications & Signals (C&S) Manual where the recommendations of AREMA do not conflict with any requirements of this Section.

1.05 DELIVERY, STORAGE AND HANDLING

A. Track circuit components shall be protected against damage during handling and shipment and shall be secured against loss during storage.

PART 2 – PRODUCTS

2.01 MATERIALS

A. AFO Track Circuit Requirements

1. Audio frequency track circuits shall be Phase Shift Overlay (PSO) 4000 Transmitter 7A471, Receiver 7A473, Crossing Assembly 7A474 and Transceiver

Assembly 7A475 as manufactured by Siemens, and will be provided with the Owner furnished prewired signal enclosures.

2. Highway grade crossing systems shall utilize the PSO 4000 Crossing Assembly 7A474 and be configured to support bi-directional operation on both tracks.

3. AFO transmitters, receivers and short-range track circuit frequency assignments shall be programmable and support typical frequencies utilized on heavy rail and light rail transit (LRT) applications.

4. AFO track circuits shall be provided for train presence detection where shown on the Contract Plans. At all crossings the island track circuit function of the PSO 4000 shall detect trains within 50 feet of the crossing. The directional stick circuit shall utilize an approach circuit and the island track circuit in determining the direction of travel.

5. Track circuits shall function to provide continuous train detection throughout the length of the circuit whenever a shunt of 0.20 ohms or more is applied across the rails anywhere in the track circuit including turnout sections to the clearance point.

6. Frequency of each overlay track circuit shall be as shown on the Contract Plans unless otherwise approved by the Engineer.

B. Electrified Electronic Coded Track Circuit

1. The Electrified Electronic Coded Track Circuit shall be the EC^2 unit manufactured by Alstom or approved equal.

2. The unit shall be capable of interface with the ElectroLogIXS vital logic controller that generates the required track codes.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Track circuitry components shall be installed, adjusted, and tested in accordance with the manufacturer's recommendations.

B. Contractor shall field adjust track transformers provided in the Owner furnished signal enclosure for proper operating voltage.

C. Contractor shall verify frequencies and settings of all AFO equipment and shall make any adjustments necessary to ensure compatibility with existing system and reliable operation.

D. Track wire conductor size shall meet or exceed the recommendations of the equipment manufacturer. The Contractor shall make necessary adjustments in the conductor size and/or configuration where required to provide reliable service based on dry ballast resistance of 4 Ohms per 1000 feet.

3.02 FIELD TESTS

A. Tests for proper operation and setting of track circuits shall be made in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Track Circuits.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting and storing Owner Furnished Track Circuit Equipment.

B. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and installing, testing, removing and relocating each interface case in the field for Segment Phasing Cutovers

C. All remaining compensation for Track Circuits shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.18
INSTRUMENT ENCLOSURES

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes installing and testing Owner Furnished, factory wired equipment enclosures as specified herein and as shown on the Contract Plans. As part of the enclosure acceptance and handoff process, the Contractor's Signal Engineer shall participate in Signal Instrument Enclosure Factory Acceptance Testing for each Segment in Williamsburg, VA.

B. Section Includes:

1. Owner Furnished Factory wired Signal Instrument Enclosures.
2. Procedures for exception reporting, punchlist, resolution, receipt, joint inspection, acknowledgement and closeout of the Signal Instrument Enclosure transfer for each Segment.

C. Related Sections:

1. Section 32 31 13 – Chain Link Fencing and Gates
2. Section 34 42 01 – Transportation Signaling and Control
3. Section 34 42 13.13 – General Railway Signal Requirements
4. Section 34 42 13.14 – Route Control Equipment
5. Section 34 42 13.15 – Battery and Charging Equipment
6. Section 34 42 13.19 – Signal System Grounding
7. Section 34 42 13.20 – Relays
8. Section 34 42 13.21 – Miscellaneous Signal System Products
9. Section 34 42 13.26 – Highway Grade Crossing Warning System
10. Section 34 42 13.27 – Painting and Galvanizing
11. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing
12. Section 34 42 16 – Train Control Wire and Cable

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. Code of Federal Regulations (CFR) Title 49, Transportation:

1. 49 CFR Part 236 – Rules, Standards, and Instructions Governing the Installation, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the proposed grounding arrangement for each location.

C. Submit cut sheets for sizes and types of internal wire proposed if different from those shown on Contract Plans.

D. Submit Factory Acceptance Test (FAT) Witness Exception Reports.

E. Submit Enclosure Exceptions Closeout and Receipt Acknowledgement Forms.

F. Submit Installation Plans for each enclosure.

G. Field Installation Inspection Procedures proposed.

1.04 QUALITY ASSURANCE

A. See Article 1.05, Delivery, Storage and Handling for joint inspection requirements when the Enclosures are received by the Contractor.

B. Each enclosure will be inspected after it has been installed in the field and any deficiencies shall be corrected by the Contractor. This inspection will be conducted in conformance with the requirements of the Contractor's approved Installation Inspection Procedure.

C. The Contractor shall verify the instrument enclosures can be mounted and secured on the structure foundations as shown on the Contract Plans. All instrument enclosures and installed equipment within shall comply with the earthquake requirements in the San Diego, CA region.

1.05 DELIVERY, STORAGE AND HANDLING

A. Factory Acceptance Test (FAT) Witness Exception Report

1. The Contractor shall participate in the FAT testing for each Segment as a witness participant to determine if the Signal Instrument Enclosures have been wired properly, contain the necessary equipment in accordance with the Contract Plans, and to observe the manufacturer's testing, in order to approve the Enclosures for shipment to the Contractor's warehouse.

2. The Contractor shall produce an Exception Report with itemized punch list for the Enclosure manufacturer to address and complete prior to Enclosure shipment.

   a. An exception report shall be produced for each Signal Instrument Enclosure and shall include Segment and Location identification within the report. The Contractor shall include photographs of the enclosure and contents to document the existing conditions and photographs of the issues observed.

   b. An itemized punch list shall be defined in the report. The punch list items shall be specific and not generalized. All items shall be listed that the Contractor requires to be addressed by the Enclosure Manufacturer prior to shipment. Once the houses have been shipped to and received by the Contractor, a joint inspection will be completed with MTS. If all items on the exception report are addressed, the Enclosure manufacturer

responsibilities shall be limited to damage incurred during shipment, or equipment early lifetime failures that occur during the one-year warranty period that are not due to the Contractor's actions, inactions, misuse or negligence.

c. If there are no exceptions for an Enclosure, a report shall be submitted stating "No exceptions taken".

d. The exception report shall be signed by the Signal Engineer. Timely transmittal of the exception report is critical. A copy of the exception report for each location shall be emailed to the Enclosure Manufacturer within 1 day of the completed inspection for that location, with a carbon copy to MTS. All exception reports for a Segment shall be submitted to MTS within 5 days of the completed Segment.

B. Joint Inspection Upon Receipt and Enclosure Exceptions Closeout / Receipt Acknowledgement

1. When the Contractor has been notified of Enclosure delivery to the Contractor's warehouse, they shall notify MTS so that a joint visual inspection can be completed at the time of delivery. An MTS representative shall be present at the time of delivery to jointly receive the Enclosures for each Segment. At time of receipt, a both MTS and the Contractor shall complete a visual inspection and take complete photographs of the Enclosures, while inspecting for any damage incurred during shipping. If damage is found, it shall be documented and photographed by the Contractor and submitted to MTS within one calendar day.

2. The Contractor shall complete and submit an Enclosure Exceptions Closeout / Receipt Acknowledgement Form to take responsibility for each delivered Signal Instrument Enclosure until project closeout or MTS acceptance.

a. Within 14 calendar days of Enclosure delivery for each Segment, the Contractor and MTS shall complete their joint inspection of the Enclosure and inventory of equipment stored within for shipping to check for completeness.

b. The Enclosure Exceptions Closeout / Receipt Acknowledgement Form shall include:

1) Segment/Enclosure Location

2) Date of Enclosure delivery/receipt

3) Date/Time of Joint Inspection

4) Names of joint inspectors (Contractor/MTS)

5) Confirmation of closeout of exception report items, or documentation, including photographs, of any/all items that are not closed and a proposal of how each open item can be remedied by the Contractor.

6) Signature of Contractor's Inspector & Contractor's Signal Engineer

c. All Enclosure exceptions shall be reviewed and confirmed for closeout on the form. If there are no exceptions for an Enclosure, a report shall be submitted stating “No exceptions taken”.

d. The Enclosure Exceptions Closeout / Receipt Acknowledgement form shall be submitted to MTS no later than 16 calendar days after the Enclosure delivery for each Segment.

PART 2 – PRODUCTS

2.01 MATERIAL - GENERAL

A. The Owner shall supply factory wired equipment enclosures, as described herein and as shown on the Contract Plans. Enclosures shall be complete with all the equipment shown on the Contract Plans. Wiring shall conform to the recommendations of the AREMA C&S Manual.

2.02 CABLE ENTRANCE TERMINAL BOARDS

A. Multiple-unit terminal blocks for wire and cable conductors shall be in accordance with AREMA Signal Drawing 14.1.6. Each binding post shall be furnished with two binding nuts, one clamp nut and three washers.

B. Siemens, or approved equal test terminals shall be provided as shown on the Contract Plans.

C. Lightning Arrestors shall be provided as shown on the Contract Plans.

D. Binding posts and exposed terminals of other apparatus for circuits exceeding 50 volts or greater (AC or DC) shall be equipped with insulating nuts and sleeves.

E. Cable entrance facilities shall be located as shown on the Contract Plans.

2.03 CABLE ENTRANCE CHUTE

A. The cable entrance chute shall be supplied with the Owner furnished signal enclosure.

2.04 GROUNDING

A. Ground the Instrument Enclosures in accordance with Section 34 42 13.19, Signal System Grounding.

2.05 INTERNAL WIRING

A. Internal wiring shall be in accordance with AREMA C&S Manual Parts 10.4.1 and 10.4.30, unless otherwise specified herein.

B. Minimum wire conductor sizes shall be as shown on the Contract Plans unless otherwise approved by the Engineer.

C. Adhering to minimum wire size specifications does not relieve the Contractor’s responsibility of using wire sized large enough to safely and effectively provide power to the circuit it serves.

D. Solderless terminals, for stranded wire, shall be used.

E. Solid terminal strap connectors shall be used for all short terminal jumpers.

2.06 OTHER EQUIPMENT

A. Panel Board: a single-phase, three-wire 120/240 VAC, 60 Hz panel board shall be included with each enclosure furnished by the Owner. The panel board shall be sized as shown on the Contract Plans.

B. Chain link fencing shall be installed around each signal enclosure as shown on the Contract Plans.

2.07 ENCLOSURE FOUNDATIONS

A. Owner Furnished Instrument enclosure (house) foundations will be provided with Owner Furnished enclosure. Foundations will be the inner wall type and adjustable from the outside of the enclosure.

B. Instrument enclosure (case) foundations shall be galvanized steel, L&W part 8A20101 or approved equal. The foundations shall be furnished by the Contractor.

C. The enclosure foundations shall be per manufacturer's recommendation. Relay Case foundations shall conform to Part 14.4. 1 and 14.4.41 of the AREMA C&S Manual recommendations. The Contractor's Engineer shall determine the height of the foundation.

D. Where existing improvements such as sidewalks, curbs, gutters, pavement, underlying material, lawns, plants, and other improvements are removed, broken, or damaged by the Contractor's operation of installing a new foundation, the Contractor shall replace or reconstruct the improvements.

E. The top of the enclosure foundations shall be placed at top of rail elevation, unless otherwise shown on the Contract Plans. Any variation to this requirement shall be approved by the Engineer.

F. All surplus excavation, from whatever source, shall be disposed of in accordance with Article 3.22, Cleaning Up, of the General Conditions.

PART 3 – EXECUTION

3.01 INSTALLATION

A. The enclosures shall be mounted level, plumb and secured as approved by the Engineer. Shims, spacers, or other filler devices shall not be used to level and plumb the enclosures.

B. Cable entrance pipes shall be installed through the cable knockout holes provided in the floor of the enclosure behind the terminal board. Pipes shall be 4-inch Sch. 40 PVC extending through the knockout holes to a minimum of 18 inches below final grade. Pipes and knockout hole edges shall be filled with a substance designed to prevent entrance of debris, rodents, and other pests.

C. The Contractor shall construct an earth pad for each instrument enclosure. Pad shall be constructed to facilitate drainage away from the track and the enclosure. Refer to Contract Plans for special installations requiring retaining wall or unique conditions. If conditions do not allow placement at the location shown on the Contract Plans, then the Contractor shall submit alternate placement for approval of the Engineer.

D. The Contractor shall coordinate all enclosure placements with the Engineer. Enclosures and associated appurtenances shall be located at the stationing shown on the Contract Plans Site Specific Layout(s). The Contractor shall refer to the civil drawings of the Contract

Plans for exact equipment location information. Enclosures shall be identified with 4" letters/numbers per locations shown on the Contract Plans.

E. Enclosures shall be grounded as specified herein.

F. Relays shall be installed on the relay plugboards corresponding to the relay nomenclature and identification plate and securely fastened in place with the hardware provided by the relay manufacturer.

G. Batteries shall be installed on battery trays. Battery posts shall be coated with an approved grease and battery connectors shall be securely fastened to the battery posts.

H. Installation shall include landing all field cables and connecting the power distribution system to meter service power cable.

3.02 AC POWER

A. Contractor shall install power cable to meter service connection or remote power location as identified on the Contract Plans and in accordance with Section 34 42 62, Service Meters.

3.03 CABLING TO EXISTING EQUIPMENT AND RAILS

A. Existing equipment not specifically shown to be removed or taken "out" in yellow shall be protected in place. The Contractor shall install new conduit, signal cabling, and pull boxes from the new Instrument Enclosure to the existing equipment. Existing conduit and pull boxes shall be used as shown on the Contract Plans. Signal cabling shall conform to the requirements of Section 34 42 16, Train Control Wire and Cable.

3.04 TESTING

A. Tests for proper operation shall be made in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will made for Instrument Enclosures.

4.02 PAYMENT

A. The Contract price paid per each Signal Location Complete shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals; and for all the work involved in field installing, pretesting, testing and commissioning the Instrument Enclosures, complete in place, including foundation/platform, rock pad or concrete, earthwork, retaining wall blocks, drainage, fencing, gates, concrete demolition and repair, testing, in accordance with the Plans and as directed by the Engineer.

B. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and installing, testing, removing and relocating each interface case in the field for Segment Phasing Cutovers.

C. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all

incidentals; and for all the work involved in factory acceptance test witnessing, reporting, accepting, receiving, inspecting, storing the Instrument Enclosures.

END OF SECTION

SECTION 34 42 13.19
SIGNAL SYSTEM GROUNDING

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes furnishing and installing a grounding system for the equipment enclosure and all other wayside equipment and supporting mast apparatus, as specified herein and shown on the Contract Plans.

B. Section Includes:

1. Grounding system for the equipment enclosure
2. Grounding system for the other wayside equipment apparatus

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.18 – Instrument Enclosures
4. Section 34 42 16 – Train Control Wire and Cable

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. ASTM International (ASTM):

1. ASTM B8 – Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

C. National Fire Protection Association (NFPA)

1. NFPA 70 – National Electrical Code

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Schematic Drawings showing the design and detail of the proposed grounding system for the signal equipment proposed to be furnished and installed.

C. Catalog cuts or drawings showing the type of components to be used for the proposed grounding system(s).

D. Installation and Test Procedure proposed for all equipment grounding.

E. Submit test reports to the Engineer upon completion of ground tests that completely describe ground resistance test procedures and test results. Test reports shall be signed by a technician and witnessed by a representative of the Engineer.

1.04 QUALITY ASSURANCE

A. Materials and equipment furnished and installed under this Section shall conform to all applicable state and local ordinances pertaining to electrical power installations and the latest edition of the National Electrical Code (NEC).

PART 2 – PRODUCTS

2.01 MATERIALS

A. Cadweld exothermic connections - Manufactured by Erico Corp.

B. Ground rods shall be manufactured by Copperweld Corp. and shall be copper-clad stainless steel. The rod shall be at least 10 feet in length and at least 3/4-inch diameter.

C. Ground rod clamps shall be manufactured by Copperweld Corp. and shall be made of a cast bronze clamp body, with non-ferrous set screws.

D. Internal ground wire, from the equipment to the ground bus, shall be insulated No. 6 AWG standard copper wire, as specified within Section 34 42 16, Train Control Wire and Cable. Insulated ground wire shall be colored green.

E. A grounding bus of nickel plated hard drawn pure copper shall be provided in the equipment enclosures.

F. Bare Ground Wire: Soft drawn copper, Class A or Class B stranded, shall meet the requirements of ASTM B8. Sizing of ground wire shall be in accordance with the NEC, except where sizes specified herein or shown on the Contract Plans are larger than those required by NEC; UL listed, Label A for lightning protection conductors. Grounding cable shall be continuous without joints or splices throughout its length.

G. Bolted Grounding Connectors: Use connectors made of high strength electrical bronze, with silicon bronze clamping bolts and hardware; designed such that bolts, nuts, lock washers and similar hardware which might nick or otherwise damage the ground wire, shall not make direct contact with the ground wire.

H. Owner Furnished Ground Fault Monitoring Device as shown on the Contract Plans and described in these Specifications.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Service equipment, motor frames, switchgear, equipment enclosures, lighting and power panelboards, transformers, raceways, fences and gates, building or structure steel frames, power/light pull boxes/maintenance holes, shall be grounded as described herein and in accordance with the applicable requirements of the NEC and local codes.

B. All wayside equipment and supporting masts installed by the Contractor shall be grounded.

C. The grounding system shall preclude any closed loop grounding arrangements.

D. Ground connection(s) to the track rails or use of the neutral conductors of the AC Power Supply shall not be permitted.

E. Grounding under these specifications will conform to AREMA C&S Manual, Section 11. In cases where these instructions differ, MTS will make the final decision.

F. Ground wire/cable runs shall be as short and straight as possible and shall not be interrupted by any device.

G. Where flexible conduit is used, a bonding jumper shall be provided.

H. Instrument Enclosure Grounding

1. Signal instrument enclosures 6'x8' or larger shall be fitted with four 48 inch long #6 copper ground wires exothermically welded to the underside of the house at each corner, using Erico CADWELD or approved equivalent. House terminal boards shall be fitted with two 12 ft. long #6 copper ground wires exothermically welded on the rear of frame approximately 18 inches above the floor.

2. Signal instrument enclosures that are 2-door and 4-door cases shall be fitted with two 48 inch long #6 copper ground wires exothermically welded to underside of the case on each side of the case.

3. Grounding material shall be supplied by the Contractor and installed as specified herein.

4. Ground rods shall be driven into the ground, at the corners of the structure. The ground rods shall be a minimum of 6 feet apart and shall be driven 6 – 12 inches below ground level. A trench, 12 inches deep, shall be dug between the ground rods. Each of the ground rods shall be electrically connected to the others, using a #6 AWG bare solid copper wire, exothermically welded, using Erico CADWELD or approved equivalent. Exothermically welded connections shall be coated with epoxy resin. The ground wires shall be placed in the bottom of the trench. The trench shall be backfilled, returning the soil removed during construction of the trench

5. The enclosure's copper ground cables shall be exothermically welded to the ground rods.

I. Interior: Equipment Grounding

1. All enclosures shall be equipped with a prime ground terminal securely attached electrically to the enclosure structure and to the made ground network.

2. Ground connections from lightning arrestors and equipment chassis shall run separately to ground buses in the enclosures, as shown on Contract Plans. Ground buses shall be connected to the prime ground with green insulated No. 6 AWG stranded wire.

3. All equipment that is powered by, voltages greater than 35 volts AC or DC shall be properly grounded.

4. All equipment that has conductors that leave the enclosure shall be properly grounded.

5. Set up ground fault monitoring device as described by manufacturer recommended procedures.

3.02 TESTING

A. Ground Resistance Testing:

1. Verify that resistance between ground buses and absolute earth, as measured by the “Fall-Of Potential” or “Clamp-on” test method, does not exceed 5 ohms without benefit of chemical treatment or other artificial means.
2. The Contractor shall submit the test equipment and test procedure to the Engineer prior to conducting the first test.
3. In the presence of the Engineer, test the grounding system by the “Fall-of-Potential” or “Clamp-on” test method to demonstrate that the total ground resistance does not exceed 5 ohms.
4. To meet this resistance requirement, if necessary, bury additional ground rods and Cad-weld the ground rods to the ground wire or cable.
5. Test grounding systems connected to Instrument Enclosures, Catenary poles, Sub-panels, all wayside equipment and supporting masts, Signals, Flashing Light Signals (all types), crossing gates, pull box grounding and all other grounds shown on the Contract Plans.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Signal System Grounding.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting and storing Owner Furnished Signal System Grounding Equipment.

B. All remaining compensation for Signal System Grounding shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

SECTION 34 42 13.20
RELAYS

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes installing and testing all required relays in the Owner Furnished Signal Instrument Enclosure.

B. Unless otherwise shown on the Contract Plans, relays shall be the plugin type. Relays of each type shall be uniform in design and contact assembly.

C. Relay technical details are provided for procurement and delivery of spare parts, under Contract Alternates for Rail Signal Spare Parts.

D. Section Includes:

1. Relays
2. Relay plugboards (base)

E. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.18 – Instrumental Enclosures
4. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Factory Acceptance Testing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

1.03 DELIVERY, STORAGE AND HANDLING

A. Vital relays shall be shipped separately from the wired racks in which they are to be used. Relays shall be packaged individually, each in a sturdy corrugated cardboard carton with the drawing number of the relay printed on the outside of the carton. Relays shall be stored in a protected area until tested and installed.

PART 2 – PRODUCTS

2.01 PRODUCTS - GENERAL

A. Relays and equipment specified shall be capable of rated performance through an operating temperature range of minus 40 degrees Fahrenheit to plus 160 degrees Fahrenheit.

B. Relays shall be in dustproof enclosures, except a provision shall be made for ventilation where required, for heat dissipation.

2.02 SIGNALING RELAYS

A. DC Relays:

1. Vital relays shall be plug-in biased neutral type manufactured by Alstom, Ansaldo STS, or Siemens. The Contractor shall use the specific relay type and configuration shown on the Contract Plans, unless approved otherwise by the Engineer.

2. Vital DC relays, unless otherwise shown on the Contract Plans, shall be of the plug-in type and rack-mounted. Relays shall have a transparent dust cover made of a nonflammable composition that will not support combustion.

3. Vital relays, with a nominal operating voltage of 10 to 16 volts, shall be capable of operating continuously without resultant damage, with a minimum voltage range of 7 to 21 volts inclusive, applied to their operating coils.

4. Vital relays shall have a front testing facility to permit de-energizing.

5. Biased neutral vital relays shall be designed so that gravity alone will prevent the armature from picking up if the permanent magnet is de-energized or if no current is applied to the coil, due to interruption of the normal magnetic circuit.

6. All front contacts shall be silver-to-metalized carbon, meeting the requirements of the AREMA C&S Manual Part 6.2.1.

7. When three DC vital relays, suppressed as specified herein, are connected in parallel and operated as a test load from normal working voltage, a vital relay front or back contact that breaks this load shall be capable of at least five million operations at this load without the contact resistance, measured with ten milliamp current, exceeding five ohms.

8. Arc suppression for vital relays shall be built into the relay or into its plugboard.

9. Vital plug-in relays, except vital time-element relays and special application relays shall be equipped with front current testing facilities. Where required by the Engineer and as shown on the Contract Plans, facilities shall be provided to enable the testing of voltage from the front of the relay, without having to remove the relay or remove adjacent relays.

10. Vital relays shall be equipped with a registration plate to prevent relays of the wrong style, contact arrangement, or operating characteristics, from being inserted into the plugboard.

B. Switch Operating Relays:

1. Vital switch operating relays used for control of switch-and-lock movements shall meet the same requirements as specified for vital biased neutral relays, except that a minimum of two front-back dependent contacts shall be supplied and contacts shall be heavy-duty metal-to-metal construction.

2. Each contact shall be equipped with a magnetic blow-out feature to effectively interrupt high currents and minimize contact wear. Switch operating relays shall be identical. One normal and one reverse switch operating relay shall be provided for each switch-and-lock movement. Switch operating relays shall be ALSTOM Type B, Hitachi Rail Model PN150BM, or approved equal.

C. Non-vital Relays

1. Non-vital relays shall be used for indication or non-vital functions only. The Contractor shall use the specific relays shown on the Contract Plans.

2. Non-vital relays shall be DC or AC operated as shown on the Contract Plans.

3. Non-vital relay bases shall contain an octal socket, screw type terminals and be capable of being mounted on DIN rail or screw mounted to a backboard.

D. Identification

1. Facilities shall be included for mounting an approved typed or printed relay name tag for each relay, either on the relay cover or on the relay cabinet front plate, as applicable. The name tag shall be easily replaceable but shall not come off during normal service.

PART 3 – EXECUTION

3.01 INSTALLATION

A. The Contractor shall ensure that the relay operating characteristics have not been altered due to damage during shipping procedures.

B. The Contractor shall ensure that all AC and DC power buses are open while installing relays. Buses shall not be reconnected until all relays have been installed.

C. The Contractor shall install the relays as shown on the Contract Plans.

3.02 TESTING

A. All vital relays shall be tested and inspected in accordance with AREMA C&S Manual Part 6.4.1 and Part 6.4.5.

B. Test measurements shall be recorded on MTS prescribed forms.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Relays.

4.02 PAYMENT

A. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and installing, testing, removing and relocating each interface case in the field for Segment Phasing Cutovers.

B. All remaining compensation for Relays shall be included in the contract price paid per Railroad Signal Spare Parts, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.21
MISCELLANEOUS SIGNAL SYSTEM PRODUCTS

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes furnishing miscellaneous components and products to be used in this Contract and shown on the Contract Plans.

B. Section Includes:

1. Miscellaneous signal system components
2. Miscellaneous signal system products
3. Signal and Communications duct bank

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.18 – Instrument Enclosures
4. Section 34 42 13.27 – Painting and Galvanizing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Product Data: Manufacturer’s catalog cuts, material descriptions, specifications, and other data pertinent to the miscellaneous products required.

C. Shop Drawings: Manufacturer’s shop drawings for enclosure and safety deck pier platforms shall be provided.

1.04 QUALITY ASSURANCE

A. All miscellaneous components and products used in this Contract shall be:

1. New and free of manufacturing defects.
2. Clearly and permanently labeled with value or type identification.

B. All electrical components shall be rated to operate at power, voltage, current and temperature levels exceeding by 20 percent those that the components will be subject to in service, unless otherwise specified herein.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Signal system terminal blocks shall be in accordance with the applicable recommendations of AREMA C&S Manual Part 14.1.5.

B. Signal system terminal binding posts shall be in accordance with the applicable recommendations of AREMA C&S Manual Part 14.1.10.

C. All terminal posts, located on terminal boards in the wayside cases, signal instrument enclosures used to terminate 50V, or greater, AC or DC circuits shall be provided with a protective insulator by L&W Industries, or approved equal. The type of insulator shall be individual for each terminal post and shall be fire-resistant.

D. Type 0246201X insulated test link as manufactured by Siemens, Inc., or approved equal.

E. Line filters and equalizers shall conform to the manufacturer's recommendations for the equipment being protected. Lightning arrestors and equalizers shall be mounted on accepted type base and shall be in accordance with AREMA C&S Manual Part 11.3.1.

F. Standard duty lightning arresters shall be Siemens Clearview air gap arrester basic assembly with cover, 4000-44485-28AX, or a variation of this part number to include hardware as required or approved equal.

G. Equalizers shall be Siemens Clearview air gap equalizer basic assembly with cover and hardware, 4000-44700-001X or approved equal.

H. Fuses shall be dual element, current limiting, and time-delay Eaton Bussmann series FRN-R or approved equal, at the amperage rating as shown on the Contract Drawings. The overload element shall provide protection against low level overcurrent of overloads and will hold an overload which is five (5) times greater than the ampere rating of the fuse for a minimum of 10 seconds.

I. Circuit breakers shall be of suitable capacity to protect the various pieces of signal apparatus from the effects of short circuits or overloads.

J. Terminals for wire and cables:

1. All solderless terminals shall be in accordance with the AREMA C&S Manual, Part 14.1.1, unless otherwise specified herein.

2. Terminals shall be of the solderless crimp-on type.

3. All stranded copper wire shall be fitted with an approved type of terminal at all points where the wires are to be terminated on terminal binding posts.

4. The terminating means shall be of four types:

   a. A lug for terminating heavy wires or signal power wires.

   b. A solderless type of terminal as manufactured by Tyco Electronics AMP, Catalog No. 327743, or approved equal, for terminating No. 16 and No. 14, American Wire Gauge (AWG) stranded wires.

   c. A solderless type of terminal as manufactured by Tyco Electronics AMP "Ring Tongue-Flat" terminal, AMP Catalog No. 35110, or approved equal,

for terminating wires larger than No. 14 AWG to a maximum diameter over the insulation of 0.40 inch.

d. A solderless type of terminal as manufactured by Tyco Electronics AMP pre-insulated, diamond grip ring nylon insulated wire terminal shall be used for terminating other stranded wires, No. 20 and No. 18 AWG, having maximum diameter of 0.125 inch. AMP Catalog No. 320554, or approved equal, shall be furnished for No. 8 studs and AMP Catalog No. 320571, or approved equal, shall be furnished for l/4-inch studs.

5. The terminals shall be attached to the ends of the conductor in such a manner that the flexibility of the conductor will not be destroyed and the possibility of breakage at the terminal will be reduced to a minimum.

6. Terminals shall be attached to the wire with a tool made by the manufacturer of the terminal and recommended by the manufacturer for the terminals being furnished.

7. The tool shall be equipped with a ratchet device to ensure proper compression of the terminal, which will not release until proper compression is complete.

K. Management for wires and cables:

1. Wiring Duct, manufactured by Panduit or approved equal, shall be 2 inches wide and provided in lengths shown in the Contract Plans. The wiring duct shall include a cover.

L. Tagging for cables, wires, and equipment:

1. Except as otherwise specified in this Section, both ends of each cable, each cable wire and all single wires that terminate in the junction boxes, switch mechanisms, signal instrument enclosures, on entrance racks, and any equipment of the signal system outside of such locations shall be permanently identified with a tag. Tags shall be installed so that they may be read with a minimum of disturbance of the tags. Each conductor of the cable shall be rung out and identified before applying the tag. The circuit nomenclature, as shown on the Contract Plans or approved shop drawing, shall be placed on the tag along with the near and far “location” or “terminal” designation.

2. Tags for wire and cable identification and for identification of transformers, resistors, reactors, and other components shall meet the following requirements and shall be subject to the Engineer’s acceptance:

a. Sleeve Type Tags:

1) Tags for identifying individual cable conductors and wires within the signal instrument enclosures, wayside cases, switch mechanisms, switch layout junction boxes, base of signal junction boxes and similar applications, shall be the sleeve type as manufactured by Brady, PermaSleeve, or approved equal. The application of the conductor nomenclature shall be in accordance with the manufacturer’s instructions and shall result in a permanently bonded and legible identification.

b. Flat Plastic Tags:

1) Tags for identification of vital relay plug boards, individual transformers, resistors, reactors, terminals, and other miscellaneous components within the signal instrument enclosures, wayside cases and outside terminal cases, shall be the flat plastic laminated type.

2) These tags shall be 1-1/2 inches long by 1/2-inch-wide. The untreated tag shall be milk white “vinylite,” or approved equal.

3) The identifying nomenclature space shall allow for two rows of lettering and the tag material shall be capable of receiving typed-on characters by conventional means. The height of the lettering shall not be less than 1/8 inch.

4) After lettering, both the face and back side of the tag shall be covered with a clear plastic coating, “vinylite,” or approved equal.

M. Hardware:

1. Mounting hardware exposed to the elements and used for signal equipment, cases, conduit, hangers, brackets, clamps, etc., shall be hot-dip galvanized, except as otherwise noted to use Stainless Steel or approved by the Engineer.

a. Galvanizing:

1) The hot-dip process of galvanizing shall be used. All parts shall be picked so that all scale and adhering impurities are removed. The zinc coating shall be of commercially pure zinc and shall be continuous and thorough. It shall not scale, blister, or be removable by any of the processes of handling or installation. The finished surface shall be free from fine line cracks, holes, or other indications of faulty galvanizing. It shall be smooth and free from adhering flux and other impurities. The edges and ends of parts shall be free from lumps and globules. Parts shall be coated with at least two ounces of zinc per square foot of galvanized surface, after all bending, cutting, drilling and final fabrication.

2) In order to avoid destruction of resilience encountered in the hot-dip process of galvanizing, all lock-washers shall be cadmium plated.

N. Pole Mounted Junction Boxes:

1. Pole mounted junction boxes shall be stainless steel with three point locking bars, mounting brackets, and padlock security provisions. Junction boxes shall be NEMA type 4X weatherproof. Junction boxes shall be 24”W x 30”H x 16”D and shall be Hammond MFG. 1418N4SSK16 or approved equal.

O. Conduit, Pull boxes and Fittings:

1. The maximum bend in all conduit runs shall be 270 degrees.

2. Schedule 40 PVC Conduit

a. Conduit shall be rated for use with 90 degree C Conductors, shall be UL listed, and shall comply with National Electric Manufacturers Association (NEMA) Specification TC-2 (conduit) and TC-3 (fittings).

b. Conduit and fitting shall carry a UL label and shall be identified by type and manufacturer and shall be traceable to location of plant and date manufactured. Labels shall be legible and permanent.

c. The conduit shall be made from polyvinyl chloride compound which includes inter modifiers to improve weatherability and heat distortion.

d. Conduit shall be free from visible cracks, holes or foreign inclusions. The conduit bore shall be smooth and free of blisters, nicks or other imperfections which could damage cables or conductors.

e. Conduit and fittings shall be solvent cemented in applications in accordance with instructions from the manufacturer.

f. All conduit installed under tracks and roadways shall be encased in five sack slurry with top of conduit a minimum of 48 inches below bottom of tie. Special care shall be taken to ensure conduit ends provide adequate spacing to receive additional conduit and fittings.

3. Rigid Galvanized Conduit

a. Conduit shall be rated for use with 90 degree C Conductors, shall be UL listed, and shall comply with ANSI Specification C80.1.

b. Conduit shall carry a UL label and shall be identified by type and manufacturer and shall be traceable to location of plant and date manufactured. Labels shall be legible and permanent.

c. Conduit shall be hot-dipped galvanized inside and out. Conduit shall be coated with an organic layer to inhibit white rust and increase corrosion resistance.

d. Conduit shall be threaded on both ends, with a threaded coupler attached on one end to allow joining of multiple conduits.

4. Pull boxes shall be as shown on the Contract Drawings, Site Specific Layouts. P2, P3 and Vaults shall be AASHTO H-20 loading.

5. All pull boxes shall be equipped with a diamond plate steel traffic cover with “MTS SIGNAL” stamped on the cover.

6. Fittings:

a. Approved fittings for PVC conduit shall be used.

b. Fittings for rigid steel conduit shall be of cast malleable iron and shall be protected by hot-dip galvanizing.

c. Fittings used in conjunction with flexible liquid-tight conduit shall be designed for use with such conduit. Fittings shall be galvanized, made of stainless steel, or otherwise constructed to resist rust or corrosion from exposure to salt air.

7. Underground Warning Tape

a. Manufacturers:

1) Siemens

1) Schneider Electric

3) Cooper Industries

4) Approved equal

b. Description

1) The construction of the warning tape shall be such that it will not delaminate when it is wet.

2) It shall be resistant to insects, acid, alkaline and other corrosive elements in the soil. It shall have a minimum of 700 percent elongation before breakage.

3) The warning tape shall be 100mm wide with bold printed black letters of approximately 19 mm on bright orange color background, and contain the printed warning “Caution Underground Electric Cable”, repeated at 800mm intervals.

4) The printed warning shall be non-erasable and shall be rated to last with the tape for a minimum of 40 years.

P. MTS will provide switch padlocks and signal padlocks. The Contractor shall provide temporary padlocks until such time the equipment is placed in-service.

Q. Sealing compound for use in sealing cable entrances shall be in accordance with AREMA C&S Manual Part 15.2.15.

R. Lubrication for switch tie plates for all switch and lock movement layouts installed by the Contractor shall be an approved graphite lubricant, similar to Dixon’s Graphite “Railroad 60.”

S. Environmental protection, as hereinafter specified for machine finished surfaces, threaded rods, nuts, and other parts that are susceptible to rusting or corroding, shall be a corrosion preventive compound, NOOXIDE, or approved equal. The product shall have sufficient body to resist weather and rusting for at least 6 months.

T. Platforms

1. Instrument enclosure platforms shall be as shown in the Signal and Communications General Information Sheets and shall be installed as shown on the Site Specific Layouts.

2. Safety deck pier platforms shall be as shown in the Signal and Communications General Information Sheets and shall be installed as shown on the Site Specific Layouts.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Material and apparatus specified herein shall be installed in accordance with the details of respective Technical Sections of these Specifications, manufacturer's recommendations and in accordance with the Contractor's approved installation drawings.

B. Conduit layouts are shown on the Site Specific Layout drawings for each location.

C. General

1. The Contractor shall locate all underground obstructions and utilities. Install conduit as near as possible to the routing indicated. Following markout the Contractor shall schedule a site meeting with the Engineer to layout the proposed equipment and conduit locations. The Contractor shall, with the approval of the Engineer, shift the location of the conduit package, as needed to avoid interference with existing equipment and structures as needed.

2. The Contractor shall install duct seal around wire, cable, and over empty conduits at all entry points to enclosures, pull boxes, and vaults.

3. Make connection including intercepting existing conduit, punching into existing pull boxes or vaults, panels, and other equipment.

D. Subsurface Conduit

1. All subsurface conduit shall be schedule 40 PVC conforming to "Conduit, Pull Boxes, and Fittings" herein and shall be installed:

   a. With minimum bends and a maximum of 270 degrees per conduit run.

   b. Minimum of 30" below grade and 48" below bottom of tie under tracks.

   c. Minimum of 6' below grade when directional drilled.

2. Conduits installed under the railway shall be constructed by open trench method under the following conditions and restrictions:

   a. Tracks shall not be closed at any time, except with the approval of SDTI. To facilitate open trench ductbank construction while the track remains open, the impact on track is limited to removal of 1 tie for the condition of 115 lb rail on ties spaced at 22 inches on centers. Contractor shall confirm the track conditions, prior to beginning work, and notify the Engineer in writing, if conditions dictate a different track crossing ductbank installation method than indicated on the Contract Plans.

   b. Contractor shall coordinate with SDTI for a slow order to be issued during the work window.

   c. The slow order shall be limited to 48 hours.

d. Contractor shall prepare and submit a Construction Staging Plan, within the limitations of the work window, for approve by SDTI and the Engineer.

e. Open trench shall be backfilled with slurry cement backfill when the work is complete. Special care shall be taken to ensure conduit ends provide adequate spacing to accommodate conduit fittings.

3. Warning tape shall be installed and placed in the trench directly above all new conduits, 12 inches below top of final grade.

4. Use sweeps with a minimum bend radius of 36” for 4” diameter conduits, 30” for 3 inch diameter conduits, and 24” for 2 inch diameter conduits.

5. Dig boring pits a minimum of ten feet from existing tracks, unless otherwise approved by the Engineer. Design and submit all shoring plans as needed to install the conduit system.

6. After cables are pulled in, all ducts shall be sealed with duct seal. All conduits shall be completely sealed to prevent intrusion of foreign objects and creatures.

7. When any facilities are placed below grade, a detailed conduit, cable and facilities plan shall be submitted to the Engineer for approval.

8. Conduit installed in the railroad right-of-way may be backfilled with excavated soil. The backfill material shall be suitable for mechanical compaction and free of large rocks or sharp debris that could damage the conduit. Special care shall be taken when backfilling around conduit and initial lifts to remove rocks with a 1-inch diameter and greater. Damaged conduit shall be replaced by the contractor at no additional cost to MTS.

9. If native material is too rocky or unsuitable for use as conduit trench backfill, Contractor shall immediately notify the Engineer.

E. Vaults and Pull Boxes

1. Vault and pull box depths will vary based on conduit size, quantity and installation methods used to maintain minimum cover for conduit as required in Part 3.01 D. The Contractor shall determine the depth of each type of pull box that is required at each location.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Miscellaneous Signal System Products.

4.02 PAYMENT

B. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished Miscellaneous Signal System Products.

C. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full

compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and installing, testing, removing and relocating each interface case in the field for Segment Phasing Cutovers.

D. All remaining compensation for Miscellaneous Signal Systems Products shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.22
SWITCH AND LOCK MOVEMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes the requirements for installing and testing Owner Furnished 110 VDC dual control switch machines for the interlocked track switch as shown on the Contract Plans. The Contractor shall furnish far side point detection switch layout kits for each switch layout. (The term “far side point detection” emphasizes the need for long point detection connecting rod for each of these layouts) Switch layout kits shall include, but not be limited to: gauge plate extension, lever latch stand, point detector bar, lock rod, swivel front rod, point detector drop lug, operating rod assembly, lock rod connecting rod, point detector rod, pedestal-mounted switch junction box, and associated hardware for all components. Contractor shall furnish rotary helper rod assemblies to replace existing helper rod assemblies at the new R26, E10, and E22 interlockings. This section also describes components that are listed as Optional Spare Parts.

B. This Section includes:

1. Switch and lock movements

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing
3. Section 34 42 02 – Spare Parts

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. Code of Federal Regulations, (CFR) Title 49 Transportation:

1. 49 CFR Part 236: Rules, Standards, and Instructions Governing the Installation, Inspection, Maintenance and Repair of Signal and Train Control Systems, Devices, and Appliances

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit installation drawings showing the tie straps and the mounting details of the switch and lock movement, including the connections to the track switch points. The Contractor shall provide installation drawings of layout.

C. Submit detailed shop drawings for all layout components. Drawings shall indicate all dimensions and material specifications.

D. Submit Installation Inspection Procedures

E. Submit one manual for each switch location, describing the installation, operation and maintenance of the switch and lock movements, to be placed in the associated signal enclosure, plus one (1) manual for maintenance personnel.

1.04 QUALITY ASSURANCE

A. Inspect the switch and lock movement after it has been installed and correct any deficiencies noted. This inspection shall be conducted in conformance with the requirements of the Contractor's Installation Inspection Procedure as approved by the Engineer.

B. The final operational tests of the switch and lock movement shall be conducted as described in Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing.

1.05 DELIVERY, STORAGE AND HANDLING

A. Prior to shipment, all parts of the switch and lock movement layout that are not painted, or made of non-corroding material, shall be coated with an approved grease to prevent corrosion. Unused threaded outlets shall be suitably plugged or capped.

B. Switch and lock movements and their component layout parts shall be protected against damage during handling and shipment and shall be secured against loss during storage.

PART 2 – PRODUCTS

2.01 OWNER FURNISHED MATERIALS

A. Owner Furnished dual control electric switch machines shall be a Model M-23A with Mechanical Circuit Controller (MCC) part numbers N451160-0536 (LEFT) and N451660-0535 (RIGHT) manufactured by Hitachi Rail. The Owner is not furnishing all layout materials. The Owner is providing power switch machines only. The Contractor is required to provide the switch layout material.

1. All switch and lock movements shall be shipped from the factory with the appropriate LEFT or RIGHT mounting configuration. Switch and lock movement configuration shall not be modified in the field without approval of the Engineer. Switch and lock movements shall be mounted on the side of the track as shown on the Contract Plans unless otherwise authorized by the Engineer.

2.02 MATERIALS

A. Switch junction boxes are to be provided at locations shown on the Contract Drawings. Switch junction boxes shall be JB100004A-02 36 terminal junction box (provided by Apex Rail) or approved equal and shall include a cast-iron, pedestal-mounted junction box, suitable for terminating the interconnecting wires and cable. Provide 2" non-metallic liquid tight conduit assembly kit CN002120A-02 (provided by Apex Rail) or approved equal. Junction box shall be in accordance with the requirements of AREMA C&S Manual Part 14.1.5 and shall be complete with a minimum of thirty-six (36) AREMA terminals.

B. Timber ties for mounting each switch mechanism shall be provided and installed by the Contractor.

C. Front rods shall be hinged type, insulated and adjustable.

D. Lock, detector, and front rods shall be insulated. Insulating details shall be bolted and shall conform to AREMA recommended practices.

E. Ample threaded areas shall be provided on each rod to accommodate a wide latitude in operating adjustments.

F. The point detector shall be connected to the facing move closed switch point.

G. Switch and lock movements motor shall be controlled by 3-wire control circuit with a nominal 110 VDC power source.

H. Hand throw lever circuitry shall provide two functions as follows:

1. Open motor control to remove power from motor and

2. Independent input direct to logic controller to be checked in switch correspondence logic.

I. Operating time shall not exceed 5 seconds.

J. Each switch and lock movement shall be supplied with an internal wiring diagram, protected by a plastic laminate and shall be fastened to the underside of the contact compartment cover.

K. Wire terminal binding posts shall be numbered using stencils or other acceptable devices.

L. Miscellaneous Fittings: Furnish all connectors such as threaded nipples, cable clamps and electrical fittings as required for each switch and lock movement layout including 2-inch-diameter flexible conduit and connectors from movement to junction box.

M. Padlocks will be furnished by SDTI and shall be installed by the Contractor.

N. Switch padlocks shall be installed on trainman’s access side of electric locks and power and hand-throw levers of switch and lock movements.

O. Composite cable is not acceptable for switch machines. Underground cables shall be 7C#6 and 12C#14 as indicated on the location plan cable sheets. Internal switch machine wiring from the junction box shall be #10 and #16 as indicated on the location plan switch circuit sheets.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Two (2) timber ties for mounting each switch mechanism shall be provided and installed by the Contractor.

B. Prior to mounting the switch mechanism on the timber ties, align the ties at right angles to the straight stock rail and space the ties in accordance with the approved switch Installation Drawings and condition the switch points to move without binding.

C. The Contractor shall install the switch and lock movements at the locations shown on the Contract Plans.

D. The switch and lock movement shall be secured to the switch mounting plate as shown on the Contract Plans.

E. The Contractor shall remove any stone ballast necessary for the installation of each switch and lock movement layout and replace and tamp the ballast after the installation has been completed. Excess ballast shall be spread evenly between ties in the vicinity of the switch and lock movement layout. Ballast shall be removed from between ties to allow unrestricted movement of switch rods.

F. Make a preliminary adjustment of switch and lock layout at the time of installation and a final adjustment when placing it in service, which shall result in the adjusting nuts being centered on the threads plus or minus 30 percent of the thread length. Final adjustment shall be made at the time of the functional test. Final adjustments shall be made in conformance with the requirements of AREMA C&S Manual Parts 2.4.1 and 12.2.1 and 49 CFR, Part 236.

G. During storage and after installation, switch and lock movement layouts shall be properly lubricated and maintained by the Contractor on a regular timed program until accepted by the Engineer.

H. Exercise care that the switch, including switch tie plates, are thoroughly lubricated at all lubricating points, that all machined surfaces susceptible to rusting, both external and internal, are thoroughly coated with grease, as acceptable to the Engineer and that threaded portions of switch rods and nuts are similarly coated and protected. Approved gearbox grease shall be added to the gearbox after mounting to the ties and prior to operation of the switch machine.

I. The switch tie plates shall be lubricated with graphite lubricant, as acceptable to the Engineer. The plates shall be thoroughly steam cleaned to remove all oil or grease prior to application of the graphite. Periodically renew the protective coating until such time as the SDTI assumes responsibility for maintenance of the equipment.

J. Temporary point detection/protection shall be provided for all turnouts installed on active in-service rail lines. The Contractor shall provide switch circuit controller(s) and install point detection/protection as approved by the Engineer.

3.02 PAINTING

A. All equipment described in this Section shall be furnished in accordance with the AREMA C&S Manual, Part 1.5.10. The finished color shall be black. Switch Machine shall have stenciled 4” lettering/numbers identifying the Switch number identification.

3.03 FIELD TESTS

A. Test all functions of each switch and lock movement layout in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Switch and Lock Movement.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished Switch and Lock Movement.

B. All remaining compensation for Switch and Lock Movement shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

C. The Signal Location Complete item for Switch and Lock Movement shall be determined by the location where the equipment is wired from.

END OF SECTION

SECTION 34 42 13.24

WAYSIDE SIGNAL ASSEMBLY

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. This Section includes furnishing and installing new wayside signal assemblies as specified herein and as shown on the Contract Plans.

2. Wayside signal assemblies shall consist of ground-mounted masts, color-light signal heads with LED lamps, backgrounds, visors, number plates (for automatic signals), ladders, platforms, foundations, and all mounting hardware required to construct absolute (interlocking) and automatic signals.

B. Section Includes:

1. Color light signals

2. Signal mast assembly

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control

2. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. California Public Utility Commission:

1. General Order 26-D – Regulations Governing Clearances on Railroads and Street Railroads with Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways and Streets.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Shop Drawings for each type of signal unit and each type of signal layout to be furnished. Drawings shall show all brackets, ladders, platforms, attachments and required mounting hardware. Shop Drawings shall show the location and method of mounting the signals to the structure. A key-numbered parts list and complete material ordering reference numbers shall be included for each type of signal layout.

C. Provide dimensions, hardware, method of mounting signal structures and material specifications for all items to be furnished.

D. Shop Drawings shall be furnished for signal concrete foundations.

E. Certification from the Logic Controller manufacturer that the LED units are approved for use with the VLD.

F. Certification from the Logic Controller manufacturer that the LED lamp units being provided will support controller hot and cold filament testing and lamp out detection in accordance with AREMA C&S Manual Part 7.1.5.

1.04 QUALITY ASSURANCE

A. Color light signals, structures, and related hardware, shall meet the requirements of AREMA C&S Manual, Part 7, where requirements of the AREMA Manual do not conflict with any requirements specified herein.

B. Inspect each signal layout after it has been installed in the field. This inspection shall conform to the Contractor's Installation Procedure as approved by the Engineer.

C. Foundations shall meet all requirements of AREMA C&S Manual Part 14.4, where requirements of the AREMA Manual do not conflict with any requirements specified herein.

1.05 DELIVERY, STORAGE AND HANDLING

A. Lamp units shall be shipped separately from the signal in which they are used.

B. Contractor shall ensure that all wayside signal assemblies and signal lamp units are safely stored and protected from damage during storage, handling, and transporting.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Color light signal unit housings shall be L&W colorlight signals, Progress Rail 94CLR series signal housings. or approved equal.

B. Signal masts, 5-inch galvanized steel.

C. Galvanized steel ladders and platforms complete with stainless steel nuts and bolts.

D. Steel helical foundations shall be utilized for ground mounted signals. Foundations shall be 10' helical piers unless otherwise identified on the Contract Plans. Where steel helical foundations cannot be installed, provide and install precast concrete foundations.

E. Signal layouts shall be as shown on the Contract Plans unless otherwise authorized by the Engineer.

2.02 COLOR LIGHT SIGNALS

A. Each signal head housing shall be fully weatherproof aluminum furnished complete with an 8-3/8 inch LED lamp unit, lens hood, background, mounting brackets and stainless steel bolts to fit mast assemblies that the Contractor proposes to furnish. The outer lens shall be high-impact plastic.

B. Signal heads shall be supplied completely wired. Signal heads shall be equipped with backlights approximately one-quarter inch in diameter.

C. Signal heads shall be supplied with the appropriate LED colored unit in each lamp compartment.

D. Doors shall be provided with a means of securing in closed position. Padlocks will be furnished by SDTI and shall be installed by the Contractor.

E. Color light signal shall be capable of displaying the aspects as shown on the Contract Plans.

F. Dwarf signals shall be in accordance with LOSSAN Engineering Standard ESD- 8520 and installed where shown on the Contract Plans.

G. Lamp units shall be designed to allow removal from the rear of the signal.

2.03 SIGNAL MAST ASSEMBLY

A. Mast assemblies for ground mounting shall be as shown on the Contract Plans and consist of a galvanized steel five-inch mast, base, ladder, platform(s), junction box and number plates equipped with all mounting hardware to accommodate the required arrangement of signal heads and ladders.

B. The base section shall be designed to accommodate a 5-inch mast. The dimensions of the foundation bolt hold centers in the base shall be the manufacturer's standard and shall be mounted on foundations as specified. Mast shall be fitted with a 48 inch long #6 copper ground wire exothermically welded to the mast.

C. A ladder, ladder foundation, platform for each signal and all required mounting hardware shall be furnished with ground mounted signals.

D. Mast, ladders, and platforms shall be constructed of galvanized steel and in accordance with AREMA C&S Manual Part 7.2.

E. Signal masts shall be predrilled for the placement of signal unit by the manufacturer at the factory.

F. An L&W Industries 3A7309-X, Progress Rail (941000527, 941000528), or approved equal, junction box equipped with a minimum of 28 AREMA terminals shall be provided and mounted so that the bottom of junction box is located approximately 36 inches above the base of the mast.

G. All mounting hardware shall be stainless steel and all hardware shall be assembled with no-oxide grease, Siemens System PN 032401-X.

H. Number plates shall be placed below the bottom signal aspect. Numbers shall be a BLACK image on a WHITE background with a single digit on each plate. Plates shall be arranged in a uni-type frame made of aluminum complete with stainless steel mounting hardware.

PART 3 – EXECUTION

3.01 INSTALLATION - SIGNALS

A. Install signal layouts in locations as shown on the Contract Plans and as shown on the approved Shop Drawings.

B. Locate signals centered between insulated joint, or as otherwise directed by the Engineer.

C. Signals shall be located as shown in the Contract Plans. Signal placements shall be coordinated with the Engineer to ensure optimum aspect preview is provided.

D. Install signal assemblies level and plumb on their foundations.

E. Install signal layouts in accordance with approved installation procedures.

F. Align signals for maximum viewing distance before placing in operation.

G. The underground cable shall be dressed, potheaded, tagged and terminated in the junction box. The conductor size of the underground cables shall be at least as large as that shown in the Contract Plans.

H. Wiring from the junction box to the signal heads shall be minimum No. 10 AWG copper stranded wire or larger as shown on the Contract Plans.

I. Install identification tags on each wire. These tags shall bear the nomenclature shown on the approved Shop Drawings.

J. Set lamp voltage between 9.0 VDC and 9.2 VDC measured at the signal lamp.

3.02 INSTALLATION – FOUNDATIONS

A. The Contractor shall install each foundation in accordance with the approved installation detail for each type of foundation, as specified herein and as shown on the Contract Plans. The absence of a specific task listing herein does not relieve the Contractor of the responsibility for providing a complete and functional installation. Signals shall be mounted on helical foundations conforming to Part 14.4.1 of the AREMA C&S Manual.

B. Foundation locations shall have utility mark outs before start of foundation work; advise the Engineer immediately if any utility or cable interferes with the foundation work.

C. Prior to placing concrete foundations in the excavations, crushed stone base shall be placed and compacted.

D. When placing foundations, the Contractor shall exercise care to ensure that anchor bolts are not bent, or threads damaged. Anchor bolt threads, washers and nuts shall be protected by applying friction tape, or other accepted method satisfactory to the Engineer, until such time as the unit to be supported is installed.

E. The top of the foundations shall be placed at the top of rail elevation. Any variation to this requirement shall be approved by the Engineer.

F. Install ground rod and exothermically welded ground wire from mast to ground rod.

3.03 LOCATING CRITERIA

A. The Contractor shall locate all exiting utilities and confirm that the proposed signal location can conform to the contract requirements. Contractor shall notify Engineer of any site specific conflicts or line of sight concerns prior to proceeding with the installation.

B. The face of signals shall not be located less than the minimum clearance requirements specified in the California Public Utility Commissions, General Order 26-D. The center of the signals located along track solely operated by light rail vehicles shall be located at a minimum of 7 feet – 6 inches from centerline of the nearest light rail track.

C. All signals shall be surrounded by a generally level work area.

D. All signals shall be placed within the MTS right of way, unless otherwise directed by the Engineer in writing.

3.04 PAINTING

A. Touch up any damaged painted finish, matching the existing paint type and color of the equipment.

3.05 FIELD TESTS

A. Tests for proper operation and setting of lamp operating voltages shall be made in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Wayside Signal Assembly.

4.02 PAYMENT

A. Full compensation for Wayside Signal Assembly shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

B. The Signal Location Complete item for Wayside Signal Assembly shall be determined by the location the assembly is wired from.

END OF SECTION

SECTION 34 42 13.25
RAIL BONDING

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes furnishing and installing all temporary and permanent rail bonds, fouling bonds, frog bonds, track circuit connections, Owner Furnished impedance bonds, impedance bond connections and all other material required for bonding of track circuit joints, track frog and switch bonding, impedance bond, traction negative return, and track circuit connections as required to provide the functionality shown on the Contract Plans and specified in these Specifications.

B. Section Includes:

1. Permanent rail bonds
2. Fouling bonds
3. Frog bonds
4. Track circuit connections
5. Owner Furnished Impedance bonds
6. Impedance bond connections

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Product Data: Manufacturer's catalog cuts, material specifications, installation and maintenance instructions and other data pertinent to the bonding material, staples, and circuit connections, specified herein and as shown on the Contract Plans.

1.04 QUALITY ASSURANCE

A. Welded Bonds and track connections shall be in accordance with the requirements of AREMA C&S Manual, Parts 8.1.20, 8.1.25 and 8.1.30, where the requirements of the AREMA Manual do not conflict with these Specifications.

PART 2 – PRODUCTS

2.01 OWNER FURNISHED MATERIALS

A. Impedance Bonds

1. Impedance bonds shall be rated at 1500 amperes per rail and will be Owner furnished.

2.02 MATERIALS

A. Impedance bond ancillary equipment and connections

1. Rail and center-tap-to-center-tap cables and impedance bond copper buss bar shall be furnished and installed, as shown on the Contract Plans, as specified in these Specifications and in accordance with the manufacturer's instructions.

2. Crossbonding and the connection of substation negative return cables shall be furnished and installed as shown on the Contract Plans and specified in these Specifications.

3. Contractor shall furnish and install new junction boxes with diamond plate steel covers at impedance bond locations. Contractor shall assume for bidding purposes that MCM cabling can be reused.

B. Bonds

1. Web Bonds: Web Bonds shall be 535 kcmil, ropelay copper cable connected to the rail via factory manufactured stub-end leads (pig tails) minimum 9 inches in length. Mechanical type insert rail web contacts shall be used where applicable for special trackwork bonding.

2. Track Circuit Rail Connectors: Track circuit connectors shall be 3/8-inch stranded bronze conductor, with 1-inch tap on one end and compression sleeve on the other end for a direct crimp type connection to the track wire and shall have a nominal length of 4 inches.

3. Rail Head Bonds: Railhead bonds shall be 250 kcmil in diameter with steel terminals welded to the conductors. They shall have a nominal length of 13 inches. Cadwelded head bonds shall be used at frogs only.

4. Rail Joint Bonds: Rail Joint Bonds shall be 250 kcmil in diameter with tinned terminals welded to the conductors.

5. Impedance Bond Cabling and Power Bonding: Cabling for fouling wires shall be 535 kcmil insulated ropelay cable mechanically connected to the rail by a compression lug.

C. Mechanical (Bolt-On) Rail Connections

1. Track circuit connections shall be mechanical type tin plated copper insert rail web contacts.

2. Acceptable Manufacturers: Cembre USA or approved equal.

D. Welded Bonds

1. Acceptable welded bond manufacturers: Erico Products, Inc. or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION - GENERAL

A. All new connections to the rail shall be mechanical-type tin plated copper insert rail web connections.

B. Welded bonds may be installed on all new non-insulated rail joints within the limits of this Contract, if mechanical type rail connections cannot be made. Engineer's approval to use welded bonds must be obtained for each proposed location prior to installation of the bond.

C. The Contractor shall install new bonds on rail joints that are affected by the Contractor's work. Two bonds, one on each side of the rail, shall be installed on each rail joint.

D. Any bond installed by the Contractor that is found to be defective prior to acceptance shall be removed, and a new bond shall be installed at no additional cost to MTS.

3.02 INSTALLATION OF TRACK CIRCUIT CONNECTIONS

A. Installation of Mechanical Rail Connections

1. Drilling machine shall be clamped onto the rail with the correct drilling template as per the rail manufacturer's neutral axis location for each rail profile.

2. All holes shall be deburred prior to contact installation.

3. Lubricants for drill bits should be used when drilling through the rail.

4. Contacts shall be installed immediately after hole is drilled to minimize electrical resistance from corrosion.

5. Supplied hardware shall be installed per the manufacturer's recommended procedures.

6. The underground cable shall be stripped back a sufficient distance for the exposed conductor to be fully inserted into the compression sleeve. The sleeve shall then be compressed with the type of compression tool designed for that purpose.

7. Heat shrink tubing shall be applied to compression sleeve.

B. Welded Connections

1. The underground cable shall be stripped back a sufficient distance for the exposed conductor to be fully inserted into the mold. The cable shall then be exothermically welded.

2. The surfaces of the rails where the bond is to be applied shall be ground clean and flat with a vitrified grinding wheel. After grinding, the surface shall be cleaned with an approved nontoxic solvent to remove all traces of grease and dirt. After the surface has been ground and cleaned, the bond wire shall then be welded to the rail in a manner that will ensure a thorough mechanical and electrical connection.

3. Ensure that each bond connection is thoroughly welded to the rail. The Engineer reserves the right to require a test of each weld by hammer and striker, or in any other manner that in the opinion of the Engineer is reasonable.

4. Non-corrosive grease shall be applied to the welds and bare cables immediately after welding and inspection.

C. All track circuit connections shall be installed by the Contractor, and any found to be defective prior to acceptance shall be removed and a new track circuit connection installed at no additional cost to MTS.

3.03 TESTING

A. Test all track circuits for continuity of circuit and ensure main line track circuit is de-energized with 0.2-ohm shunt at any point within the track circuit.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Rail Bonding.

4.02 PAYMENT

A. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished Impedance Bonds.

B. All remaining compensation for Rail Bonding shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

C. The Signal Location Complete item for Rail Bonding shall be determined by the location closest to where the bonding is installed.

END OF SECTION

SECTION 34 42 13.26
HIGHWAY GRADE CROSSING WARNING SYSTEM

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes furnishing transportation, labor, material, and equipment required for the fabrication, planning installation, removal, relocation, modification, testing, placing in service and documenting as-built conditions of grade crossing warning devices and systems to provide for the continuous operation of the highway-rail and pedestrian-rail grade crossing warning system as shown on the Contract Plans. Certain grade crossing warning equipment is Owner Furnished within the Signal Instrument Enclosures, as shown on the Contract Drawings.

B. Section Includes:

1. Highway-rail grade crossing warning system
2. Pedestrian-rail grade crossing warning system

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.18 – Instrument Enclosures
3. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. California Department of Transportation (Caltrans):

1. California Manual on Uniform Traffic Control Devices (CA MUTCD)

C. Code of Federal Regulations (CFR), Title 49, Transportation:

1. 49 CFR Part 234 – Grade Crossing Safety

D. CPUC, General Orders (G.O.):

1. G.O. 26-D – Clearances on Railroads and Street Railroads as to Side and Overhead Structures, Parallel Tracks and Crossings
2. G.O. 75-D – Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings

1.03 ADMINISTRATIVE REQUIREMENTS

A. The Contractor shall be responsible for providing continuous highway grade crossing warning during all phases of construction. At no time shall the work of the Contractor cause delay to train operation, cause an unsafe signaling condition to exist, or reduce the effectiveness or quality of the existing or new grade crossing warning systems.

B. Pedestrian-rail grade crossing closure guidelines are identified in Section 01 00 00, General Requirements.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit one (1) maintenance and operating manual for each location where a crossing gate mechanism is installed.

C. Submit shop drawings and catalog cuts for each warning device configuration furnished at the crossing. Shop drawings shall provide details indicating mounting and size dimensions and indicate placement of all LED lamp units, signs, bells, etc.

D. Submit catalog cuts or shop drawings for warning device foundations and hardware.

E. The Contractor shall submit for approval of the Engineer, a work plan to detour, or protect, vehicles and pedestrians around or away from open excavations and construction in platform areas. Work plan shall provide for adequate pedestrian and vehicular access. The Contractor is responsible for obtaining required traffic control permits for work in conjunction with highway grade crossing including providing required documentation to obtain permits.

F. The Contractor shall submit, for approval by the Engineer, its proposed work plan for providing alternate methods of crossing warning whenever the existing automatic crossing warning devices are deactivated, altered, or modified in order to accommodate construction work. Alternate methods shall conform to applicable parts of 49 CFR, Part 234 and all local ordinances.

1.05 QUALITY ASSURANCE

A. Grade crossing warning systems shall be furnished, installed, and tested in accordance with applicable requirements of 49 CFR, Part 234, CPUC General Orders 26-D and 75-D, CA MUTCD, and these Specifications.

B. Each system will be inspected upon completion of installation and any deficiencies noted shall be corrected by the Contractor. This inspection will be conducted in conformance with the requirements of the Contractor’s approved Installation Procedure.

1.06 DELIVERY, STORAGE AND HANDLING

A. Equipment shipped within instrument enclosures shall be properly fastened and braced to prevent damage during transit. Any equipment damaged during transit or prior to in service operation shall be replaced at no additional cost to MTS.

B. Electronic plug-in modules shall be packaged in separate containers for shipment and not installed until the enclosure is set at its final location.

1.07 FIELD CONDITIONS

A. Protect existing signaling and communications cabling and, where necessary, relocate existing cabling to prevent damage to the cabling during track installation, profiling, or grade crossing work.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Crossing Warning Device Control System

1. Crossing warning device control will be from a 20 Amp Alstom IXC-20S+ mounted within an ElectrologIXS chassis via a crossing interface panel (XIP-20B) as shown on the Contract Plans and Owner Furnished within the Signal Instrument Enclosures.

2. Train detection circuits requiring audio frequency overlay as shown on the Contract Plans will utilize a PSO 4000 system as shown on the Contract Plans and Owner Furnished within the Signal Instrument Enclosures. Overlay circuit shall detect occupancy throughout the length of the circuit whenever a shunt of 0.20 ohms is applied across the rails, including turnout sections.

B. Flashing Light Signal and Gate Assemblies

1. Each flashing light signal assembly shall be furnished complete with all associated hardware consisting of 5-inch diameter – 18 feet high mast, junction box base, LED flashing light unit(s), electronic bell, signs, and miscellaneous hardware as shown on the Contract Plans and as specified herein. Mounting hardware shall be stainless steel. Each assembly mast shall be fitted with a 48 inch long #6 copper ground wire exothermically welded to the mast.

2. Flashing light signal assembly equipped with a gate shall include mast, junction box base, gate mechanism with counterweights and arm, sealtite conduit and fittings, 12-inch LED lamp assembly, fiberglass gate arm with 3 each LED lamp units, railroad crossing sign, “TRACK” number sign, crossing paddle, bell and high wind bracket. Gate assembly shall include an LED “FIB” indicator where shown on Contract Plans.

3. Gate assemblies shall be furnished with Western Cullen Hayes Model 3597 gate mechanism, or approved equal, equipped with a maintenance test terminal and power down module. Gate mechanism shall not weigh in excess of 290 lbs. and shall not be greater in size than 28 inches high, 22 inches wide and 15 inches deep.

4. Flashing light assemblies shall be provided as shown on the Contract Plans. Light units shall be equipped with 12-inch LED lamp units and be complete with plastic backgrounds, plastic hoods, junction box and cross-arm brackets and capable of mounting on a 5-inch aluminum mast with junction box base.

5. A new electronic, uni-directional crossing warning bell (low tone) conforming to the AREMA C&S Manual, Part 3.2.61 shall be provided with warning device assemblies as shown on the Contract Plans.

6. “Railroad Crossing” signs, multiple track signs and the like, shall be extruded aluminum, reflex-reflective sheet type as recommended in the AREMA C&S Manual Parts, 3.2.70 and 3.2.75, respectively. Signs shall be provided complete with all stainless-steel hardware for mounting on 5-inch mast. All highway-rail crossings shall conform to CPUC required signage.

7. Gate arms shall be of sufficient lengths so that the tip of the gate reaches the face of the median curb or within one foot of an adjacent gate arm as required by CPUC G.O. 75-D. Gate arms shall be National Electric Gate fiberglass arms with vertical striping or approved equal. Gate arm lamps shall be LED conforming to the AREMA C&S Manual, Part 3.2.40. The lamp wiring harness shall be fitted with a five wire pull-apart connector for interconnection to the gate mechanism. Lamp cable shall be threaded through the interior of the gate to each lamp.

C. Flashing Light Signal Assembly Foundations

1. Flashing light signal assembly foundations shall be furnished and installed at locations as shown on the Contract Plans.

2. At locations where existing flashing signal foundation(s) have to be removed in full order to install new flashing light signal foundation(s) and therefore the existing flashing light signal shall be removed prior to the installation of the new flashing light signal assembly, the Contractor shall provide traffic control at the crossing until such time the new flashing light signal assembly is made functional, tested and placed in service.

   a. Flashing Light Assembly (CPUC No. 8) and Flashing Light Assemblies with Gate Arms (CPUC No. 9 and the 9A gate foundation) shall be mounted on helical foundations conforming to Part 14.4.1 of the AREMA C&S Manual.

   b. Under no circumstance shall the overall length of the flashing light or flashing light with gate foundation be less than 4 feet 7 inches.

3. Bolts, nuts, and washers shall be galvanized. Nuts and threads shall be in accordance with AREMA C&S Manual recommendations for Bolts, Nuts and Threads, C&S Manual, Part 14.6.20. Plain washers shall be in accordance with AREMA C&S Manual recommendations for Plain and Spring Lock Washers, Part 14.6.21. The 1 inch Anchor Bolts shall be a minimum of 3 inches longer than the length required to provide a foundation compression nut, leveling nut, flat washers and a top nut that will enable the Contractor to level the base and plumb the signal mast. Foundation design shall allow a 3-inch GRS conduit to fit in the cable port of the warning device junction box base.

4. Steel helical foundations shall be utilized for flashing light signal assemblies. Foundations shall be 10’ helical piers unless otherwise identified on the Contract Plans. Where steel helical foundations cannot be installed, provide and install precast concrete foundations.

D. Hardware

1. Mounting hardware exposed to the elements and used for signal equipment, cases, conduit, hangers, brackets, clamps and the like, shall be hot dip galvanized, or stainless steel, except as otherwise specified herein or approved by the Engineer. The hardware shall be coated as follows:

   a. The hot dip process of galvanizing shall be used for coating of steel parts that are specified to be galvanized. Parts shall be pickled so that scale and adhering impurities will be removed. The zinc coating shall be of commercially pure zinc and shall be continuous and thorough. It shall not scale, blister, or be removable by any of the processes of handling or

installation. The finished surface shall be free from fine line cracks, holes, or other indications of faulty galvanizing. It shall be smooth and free from adhering flux and other impurities. The edges and ends of parts shall be free from lumps and globules. Parts shall be coated with at least two (2) ounces of zinc per square foot for galvanized surface after all bending, cutting, drilling and final fabrication.

b. Nuts, bolts and washers used to mount equipment within finished enclosures shall be stainless steel. As an alternate, the Contractor may submit another type of plating or non-corroding metal for the Engineer's approval.

c. Lock washers shall be cadmium plated. Cadmium plating shall be an impervious, dense, hard, fine-grained, continuous, closely adhering coating of commercially pure cadmium, free from capillaries and shall completely cover the surface of the part in a smooth, bright layer. Plating on raised or prominent portions shall show no evidence of blackness or loose crystalline structure. It shall have a minimum thickness of six ten-thousandths of an inch and shall withstand the standard salt spray test for at least 1,000 hours or an equivalent test approved by the Engineer.

E. Nearside Latch-Out Indicators

1. Latch-out indicators installed at the start of the crossing approach circuit shall be the same type of signal as specified in CalTrans Standard Specification Section 86-1.02S(3), Pedestrian Signal Faces, except that the message symbols shall be a yellow "S" above a lunar white "E".

2. The latch-out indicators shall operate on 12 volts DC, nominal. The lamps shall be prewired to a junction box located near the base of the mounting pole. Wiring shall terminate on terminal boards suitable for use on AREMA vital circuits.

3. Each message symbol shall be distinct and unmistakable when viewed from a height of 7 to 12 feet above top of rail at a minimum distance of 400 feet.

4. The latch-out indicators shall be either free-standing "Stand Alone Nearside Indicator" or "Pole Mounted Nearside Indicator" attached to a catenary pole and be provided with all materials and hardware necessary for mounting. Type 314 stainless steel banding shall be used to band the indicator to the pole.

5. FIB indicators installed at the crossing gate location shall be a flashing light as specified herein except that the signal face shall be masked out to produce a visible red "X". The signal shall display a constant red X when the gate-hold off feature is activated. The signal shall display a flashing red X when the gate-hold off feature time has expired and crossing warning is activated.

F. Traffic Signal Preemption Circuit

1. The traffic signal preemption circuit shall be provided as shown on the Contract Plans and as specified in these Specifications. The traffic signal preemption cable shall be a 6 pair #18AWG signal cable. The Traffic Signal Preemption Circuit shall be wired as shown on the Contract Plans.

a. The traffic signal preemption cable shall:

1) Be underground cable rated for direct burial applications.

2) Contain 5 mil minimum copper shielding.

3) Have polyethylene jacket cable insulation.

4) Have conductors that are solid annealed copper with polyolefin insulation.

2. The Contractor shall provide an interface for interconnection to traffic signal controllers as shown on the Contract Plans.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Flashing Light Signal Location Criteria

1. The Contractor shall locate all existing utilities and confirm that the proposed crossing gate signal location can conform to the contract requirements. Contractor shall notify the Engineer of any site specific conflicts or line of sight concerns prior to proceeding with the installation.

2. The face of flashing light signals (all types) shall not be located less than the minimum clearance requirements specified in the CA MUTCD, Part 8.

3. Whenever it is practical to do so, crossing gates shall be located perpendicular to the centerline of the roadway as shown in the Recommended Configuration Plans of Part 3.1.36A of the AREMA C&S Manual of Recommended Practices. The general arrangement of the crossing gates shall be as shown on the Contract Plans.

4. Except as otherwise specified below, flashing light and cantilever signal locations shall conform to the requirements of Part 3.1.35 and Part 3.1.36 of the AREMA C&S Manual of Recommended Practices.

5. The crossing gate arm in the upright position shall be 5 feet clear of any obstruction.

6. Where the distance from face of curb to the edge of the public right of way is greater than 13 feet or less than 10 feet measured perpendicular to the curb face in line with the proposed gate location or the distance from center of gate to the centerline of track is less than 15 feet, the center of each flashing light signal foundation shall be located 4.5 feet behind the face of curb, unless otherwise directed by the Engineer.

7. Where the distance from face of curb to the edge of the public right of way is less than 13 feet and more than 10 feet measured perpendicular to the curb face in line with the propose gate location and the center of the crossing gate can be offset at least 15 feet from centerline of track, each flashing light signal foundation shall be located 7 feet behind the face of curb, unless otherwise directed by the Engineer.

8. At crossings without curbs, the center of each flashing light signal foundation shall be located 8.5 feet from edge of pavement, unless otherwise directed by the Engineer.

9. At locations where a flashing light signal foundation is located on the side of a roadway, the top of the foundation shall be placed a maximum of 4 inches above the top of pavement along the closest edge of the travel way.

10. At locations where a flashing light signal foundation is located in the median of a roadway, the top of the gate foundation shall be placed a maximum of 4 inches above the top of edge of pavement at the edge of travel way closest to the median.

11. Flashing light signals shall not be placed in drainage ditches, unless directed to do so by the Engineer.

12. All flashing light signals and cantilevers shall be surrounded by a generally level work area.

13. All flashing light signals shall be placed within the MTS or City right of way, unless otherwise directed by the Engineer in writing.

3.02 FIELD TESTS

A. Test all functions of grade crossing warning system in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Highway Grade Crossing Warning Systems.

4.02 PAYMENT

B. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing and storing Owner Furnished Highway Grade Crossing Warning System Equipment.

C. All remaining compensation for Highway Grade Crossing Warning System shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.27
PAINTING AND GALVANIZING

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes the painting and galvanizing equipment, hardware and apparatus as specified within these Specifications and as shown on the Contract Plans.

B. Section Includes:

1. Painting
2. Galvanizing

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42.13.13 – General Railway Signal Requirements
3. Section 34 42 13.18 – Instrument Enclosures
4. Section 34 42 13.21 – Miscellaneous Signal System Products
5. Section 34 42 13.22 – Switch and Lock Movement
6. Section 34 42 13.24 – Wayside Signal Assembly

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A123 – Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. ASTM A143 –Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
3. ASTM A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware
4. ASTM A384 – Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies
5. ASTM A780 – Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
6. ASTM D6386 – Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting

B. California Department of Transportation (Caltrans):

1. California Manual on Uniform Traffic Control Devices (CA MUTCD)

C. Society for Protective Coatings (SSPC)

1. SSPC PA 1 – Shop, Field, and Maintenance Painting of Metals
2. SSPC PS Guide 12.00 – Guide to Zinc-Rich Coating Systems

3. SSPC Paint 20 – Zinc Rich Primers IO and O

1.03 SUBMITTALS

NOT USED

1.04 QUALITY ASSURANCE

A. Painting:

1. All equipment shall be inspected prior to shipment and upon receipt at the Contractor's storage facility to ensure surfaces are properly painted and galvanized as specified herein.

2. The Contractor shall make repairs or replace items as approved by the Engineer if any surfaces are damaged prior to or during installation with no additional cost to MTS.

3. Comply with the applicable provisions and recommendations of SSPC and AISC for shop painting of structural steel.

B. Galvanizing:

1. Steel and ferrous metal items exposed to moisture, gratings, and items as shown on the Contract Plans, shall be galvanized after fabrication by the hot-dip process in accordance with ASTM A123. Weight of the zinc coating shall conform to the requirements specified under "Weight of Coating" in ASTM A123.

2. Safeguarding against steel embrittlement shall conform to the applicable requirements of ASTM A143.

3. Safeguarding against contortion and distortion of steel members shall conform to the applicable requirements of ASTM A384.

4. Shop galvanized metalwork, requiring field welding, which in any manner removes original galvanizing shall be restored by field galvanizing repair in accordance with ASTM A780.

5. Bolts and screws for attachment of galvanized items shall be galvanized in accordance with ASTM A153.

6. Prepare galvanized metal surfaces, to be painted, in accordance with ASTM D6386.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 PAINTING

A. Shop paint miscellaneous metalwork, except for those members or portions of members to be embedded in concrete or masonry, surfaces, and edges to be field welded and galvanized surfaces, unless otherwise indicated.

B. Prepare and clean substrates in accordance with the paint manufacturer's written instructions and as specified, for each particular substrate condition:

1. Projections and irregular surfaces shall be ground smooth or removed. Weld accumulations, spatter and slag shall be removed.

2. Remove accessories, cover plates and similar items in place and not to be painted, or provide suitable protection from surface preparation and painting operations. Remove such items if necessary for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, re-install the removed items using workers skilled in the trades involved.

3. Surfaces to be painted shall be cleaned to remove all oil and grease prior to mechanical cleaning. Neutralize welds with a chemical solvent that is compatible with the specified painting systems.

4. Mechanically clean and abrade all prepared surfaces. Abrasive type and size shall be selected to provide the required level of cleanliness while establishing a surface profile recommended by the paint manufacturer. Abrasive material shall be new material, free of contaminants that would interfere with adhesion of the paint. Abraded surfaces shall be vacuumed immediately prior to primer application to remove residual dust. All mechanically cleaned surfaces shall receive a coating of paint within eight hours or before flash rusting can occur. If flash rusting occurs, the surface shall be re-cleaned prior to paint application.

C. Exterior Applications:

1. After fabrication and immediately before shop painting, clean and prepare surfaces as described above.

2. Abrasive blast all steel surfaces to be painted.

3. Re-wipe as necessary and vacuum all surfaces to remove dust immediately prior to paint application.

4. Apply one coat of solvent based, inorganic zinc primer, at 2.5-3.0 mils DFT, in accordance with the applicable sections of SSPC-PA 1 and SSPC-PS Guide 12.00. Materials shall conform to SSPC-Paint 20, Zinc-Rich Primers.

D. Inaccessible Surfaces:

1. For surfaces that shall be inaccessible after assembly or erection, apply a second coat of water based acrylic primer, at 2.0-3.0 mils DFT.

3.02 GALVANIZING

A. Galvanized surfaces that have become damaged from welding, handling, or installation shall be repaired immediately after installation with galvanizing repair material in accordance with, ASTM A780.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Painting and Galvanizing.

4.02 PAYMENT

A. Full compensation for Painting and Galvanizing shall be considered included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 13.28
BLOCK SIGNAL AND HIGHWAY GRADE CROSSING WARNING SYSTEMS TESTING

PART 1 – GENERAL

1.01 SUMMARY

A. Description: The Contractor shall test and place into service the block signal and highway crossing warning systems in accordance with the test plan and procedures developed by the Contractor and submitted to and approved by the Engineer.

B. Section Includes:

1. Block Signal and Highway Grade Crossing Warning Systems Testing

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.14 – Route Control Equipment
4. Section 34 42 13.15 – Battery and Charging Equipment
5. Section 34 42 13.17 – Track Circuits
6. Section 34 42 13.18 – Instrument Enclosures
7. Section 34 42 13.19 – Signal Systems Grounding
8. Section 34 42 13.20 – Relays
9. Section 34 42 13.21 – Miscellaneous Signal System Products
10. Section 34 42 13.22 – Switch and Lock Movement
11. Section 34 42 13.24 – Wayside Signal Assembly
12. Section 34 42 13.25 – Rail Bonding
13. Section 34 42 13.26 – Highway Grade Crossing Warning Systems
14. Section 34 42 13.27 – Painting and Galvanizing
15. Section 34 42 16 – Train Control and Wire
16. Section 34 42 19.01 – Vital Logic Controller
17. Section 34 42 23 – Railway Control Equipment
18. Section 34 42 26.13 – Signal System Fiber Optic Network

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. CPUC General Orders (G.O.):

1. G.O. 75-D – Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings

C. Code of Federal Regulations (CFR), Title 49, Transportation:

1. 49 CFR Part 234 – Grade Crossing Safety

2. 49 CFR Part 236 – Rules, Standards, and Instructions Governing the Installation, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. The Contractor shall submit the Owner Furnished Vital Application Software Factory Acceptance Test (FAT - Performance) Exception Report for any exception the Contractor takes to the software demonstrated/tested by the Owner within a Segment. If the Signal Engineer signs the acknowledgement form at the Segment Performance FAT, no exception report submittal is required for that Segment.

C. The Contractor shall submit Field Test Procedures for all equipment, systems and subsystems installed, modified, and/or adjusted as a result of the Contractor work a minimum of 160 calendar days prior to the proposed date of the first Segment's Field Test for Engineer's approval.

D. For each Segment, the Contractor shall submit a Field Test Plan and Test Forms a minimum of 120 calendar days prior to the proposed date of testing for Engineer's approval. A Field Test Plan shall be submitted for each phase of a system or subsystem cutover and placing the system or subsystem in operation.

E. For each Segment, the Contractor shall complete End to End Pretesting and submit either an Application Software Precheck Certification Form or Software Exception Form to indicate whether Owner modifications are required to be made to the Owner Furnished Application Software.

F. The Contractor shall submit one (1) electronic copy for each location and place one (1) each 3-ring binder within each location that contains complete printouts of the vital and non-vital software logic, hardware configuration, hardware settings, communication settings and other pertinent information for the setup, configuration and maintenance of the systems, subsystems and equipment utilized in each instrument enclosure being placed in operation.

1.04 QUALITY ASSURANCE

A. Test plan and procedures shall conform with Parts 8.6.1, 8.6.10, 11.1.1, 10.4.30, 12.5.1, 12.5.5, 6.2.1, 3.3.1, 2.4.1, 2.4.5 and 3.3.5 of the AREMA C&S Manual and the requirements specified herein.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 CALIBRATION OF TEST INSTRUMENTS

A. All instruments or recorders employed in these test programs shall bear a record of calibration against certified standards by the National Institute of Standards and Technology. Such calibrations shall be made at least each 180 calendar days and at such other periods as may be directed by the Engineer. Each test record shall identify the specific instrument employed in the test and the latest date on which it was calibrated, and the calibration expiration date.

3.02 FACTORY ACCEPTANCE TESTS AND INSPECTIONS

A. The Factory Acceptance Testing (FAT) will consist of the Enclosure Manufacturer testing (Enclosure FAT) and MTS Engineer testing (Performance FAT) to ensure complete testing of the enclosure. For each of the 7 FAT Segments, the Contractor shall provide the Contractor's Signal Engineer (and any other personnel the Contractor deems necessary to complete the requirements herein) to attend the Factory Acceptance Testing.

1. The Contractor shall be notified a minimum of 30 calendar days in advance of each Segment's FAT and the expected duration of the testing.

a. For bidding purposes, assume:

1) Each Segment's FAT will require fifteen (15) full working days, or three (3) calendar weeks. This does not include travel time to reach the Enclosure Manufacturer's facility.

2) The Enclosure Manufacturer's facility will be available for a minimum of 9 hours each day for FAT.

B. At the Enclosure FAT, the Contractor's Signal Engineer shall attend the Factory Acceptance Testing and participate as a witness in the testing to determine if the Signal Instrument Enclosures have been wired properly and contain the necessary equipment in accordance with the Contract Plans. At a minimum, the Enclosure FAT shall include the following:

1. Visual inspection checklist
2. Material list with description, model number and serial number
3. Manufacturer Test
   a. Manufacturing testing data as applicable
4. Wire ring out and tag verification
   a. Complete circuit breakdown and point to point verification
   b. Verification of all tagging at each point
5. Energizing of the commercial power distribution panel
   a. Verification of all circuit breakers and power distribution circuits
6. Energizing of chargers, battery circuits and buses.
7. Energizing all equipment within the instrument enclosure

8. Enclosure ground testing

9. Vital logic controller test

   a. Enclosure Manufacturer will provide a generic application logic program to exercise all inputs and outputs to verify circuit logic.

10. Vital relay testing

C. At the conclusion of the Enclosure FAT for all enclosures within a Segment, the Contractor's Signal Engineer shall participate in Performance FAT to observe the Engineer's demonstration and testing of Owner Furnished Vital Application Software for release and transmittal of software to the Contractor to complete their independent pretest verification.

1. At the conclusion of each Segment's Performance FAT, the Contractor's Signal Engineer shall sign an acknowledgement formindicating that the software is ready for their independent pretest verification. If the Contractor's Signal Engineer does not accept the software, an exception report shall be transmitted to MTS for review within 2 calendar days of the Performance FAT:

   a. The exception report shall include:

      1) Date for Performance FAT

      2) Date of report

      3) Segment and Location of each software exception.

      4) Clear documentation of why the software is not acceptable, including the Contractor's proposed solution to make the software acceptable.

      5) Signature of Contractor's Signal Engineer

3.03 PRETESTS, FIELD TESTS AND INSPECTIONS

A. The Engineer shall receive written notification at least 72 hours prior to each test.

B. No testing shall begin until the Engineer has approved the Contractor proposed Field Test Procedures and Field Test Plan.

C. End-to-End Pretesting

1. After the Signal Instrument Enclosures for a Segment are received at the Contractor's warehouse and the Contractor has received the Owner Furnished Vital Application Software (including phasing software), the Contractor shall wire the Temporary Interface Case associated with that Segment. The Contractor's Signal Engineer shall perform independent end-to-end pretesting of the Owner Furnished software for that Segment. These tests shall be performed with all instrument enclosures interconnected as shown in the Contract Drawings and can be completed in either the Contractor's warehouse or after signal instrument enclosure field installation (with fiber connectivity) at their discretion. The Contractor shall complete end-to-end pretesting for both the Segment phasing condition with the Temporary Interface Case and the final condition once the Temporary Interface Case is removed.

2. The Contractor shall perform end-to-end pretests in advance of actual testing, utilizing the approved Field Test Procedures, Test Plan, and Test Forms.

   a. As each Segment's signal instrument enclosures arrive at the Contractor's warehouse, receive joint inspection and are accepted by the Contractor, the Contractor shall complete wiring for the Temporary Interface Case associated with that Segment. The Contractor's Signal Engineer shall complete end-to-end pretesting with the Owner Furnished safety critical application software transmitted to complete an independent pretest verification.

   b. If the Contractor finds that the software is acceptable through their independent end-to-end pretest verification, the Contractor's Signal Engineer shall submit an Application Software Precheck Certification Form for each location certified. The Application Software Precheck Certification Form shall include:

      1) Date of independent end-to-end pretest verification

      2) Date of report

      3) Segment and Locations certified (list Checksum/CRC for each)

      4) Temporary Interface Case and Phasing Software certified (list Checksum/CRC)

      5) Copies of all completed pretest forms

      6) Signature of Contractor's Signal Engineer

   c. If the Contractor finds that the application software is not acceptable, a Software Exception Report shall be submitted within 2 calendar days of the independent pretest verification. The Software Exception Report shall include:

      1) Date of independent end-to-end pretest verification

      2) Date of report

      3) Segment and Location of each software exception (list Checksum/CRC)

      4) Clear documentation of why the software is not acceptable, detailing issues found during end-to-end pretest, and including the Contractor's proposed solution to make the software acceptable

      5) Signature of Contractor's Signal Engineer

D. Central Control Pretests

1. The Contractor shall support control and indication verification pretests for the revised CTC software that resides at MTS Central Control. The modifications shall be made by Segment for each systems cutover. The Contractor shall coordinate with others to validate office software changes by exercising the system in the field. Contractor shall ensure that adequate personnel are provided to support these tests, and that pretests are completed and acceptable to MTS Operations prior to each Segment cutover. During each Segment cutover,

functionality of the CTC software shall be confirmed with MTS Central Control and incorporated into the Contractor's Test Plan.

E. Test Principles and Best Practices

1. The Contractor shall perform all tests required to provide for the proper and safe operation of all signal equipment and to prove the adequacy and acceptability of the total installation.

2. Prior to any stage of operational testing, the Contractor shall check the quality of the installation by visual inspection and by tests of continuity, insulation resistance, resistance of ground connections, vital circuit breakdown and other tests as required.

3. The tests to be performed shall cause each system and subsystem to be sequenced through all required operations and shall include simulated conditions to prove that the installation is in compliance with fail-safe requirements.

4. During field testing if any jumpers or special wiring is temporarily added for any reason, it shall be recorded on a log sheet indicating the circuit involved, the placement of the jumper or special wiring, the purpose for the change and when jumpers or special wiring are added and removed. Log sheet entries shall be signed by the Contractor's Signal Engineer and a copy furnished to the Engineer. All jumpers and temporary wiring shall be removed after the completion of the test and the removal noted on the log sheet. Temporary wiring shall be marked so as to be clearly distinguishable from permanent wiring.

3.04 TEST PROCEDURES, TEST PLANS AND TEST RESULTS

A. Test Procedures:

1. Test Procedures shall provide a narrative description of the adjustments, equipment setup and testing requirements for each sub-system and system to be tested.

2. The Test Procedure submittal package shall include drawings, checklists and test forms for recording the results.

3. Test Procedure packages shall be bound individually by location. For example, a separate package shall be submitted for each highway grade crossing, ABS and interlocking location. A separate package shall be submitted for each instrument enclosure where two or more instrument enclosures are used in conjunction with an interlocking.

4. Highway grade crossing warning Test Procedures shall include checklists for the inspection, adjustment and testing of gate mechanisms and warning devices. The Test Procedure package shall include forms for, but not limited to, recording lamp voltages, gate descent time, gate recovery time, solid-state crossing controller program settings, and all PSO track circuits and tests as required by 49 CFR Part 234.

5. The Test Procedure package for placing block signals in operation shall include drawings that depict the signal aspect to be displayed as a train progresses through the route. The drawing shall list each track circuit, AFO circuit, switch, or other device that is checked within each block circuit. During testing the Signal

Engineer directing the test will check off each device as it is tested. The shunting of a track circuit for purposes of the test is not acceptable where a track circuit and AFO circuit overlap. Each circuit shall be checked by the Contractor individually to ensure both circuits are checked in the signal block circuit.

6. If additional tests are required because submitted test results do not comply with the requirements of the specifications, or do not provide adequate information the Contractor shall be required to retest, at no expense to MTS and the retesting is to be documented and submitted to the Engineer for approval as part of the work.

7. Each Test Procedure package submitted shall be signed by the Signal Engineer(s) responsible for directing the test. If the test schedule requires shifts in which multiple Signal Engineers direct testing, each Signal Engineer shall sign the Test Procedure package submitted.

B. Test Plan:

1. The Contractor's Test Plan shall include, but not limited to:

a. A comprehensive description of the work to be completed prior to beginning in-service testing.

b. A description of the track limits needed to complete the testing.

c. Emergency phone numbers.

d. Location of emergency medical facilities in the immediate area.

e. Method of Roadway Worker Protection being provided.

f. Location of job briefing for each shift.

g. A detailed cutover schedule that includes the activities to be completed and the time allotted for each activity.

h. Resources, tool, and test equipment requirements.

i. Listing of personnel with duty assignments with respect to duties during cutover and location assignment during testing.

j. Contingency plan if work is not completed within specified time.

k. Method of communications (i.e. radio channel to be used, etc.)

l. Any special considerations.

m. Rollback procedures due to installation failure.

n. The Engineer reserves the right to request additional information to supplement the data provided by the Contractor if the Engineer does not believe the information submitted is sufficient.

C. Certified Test Reports:

1. Certified Test Reports shall consist of, but not limited to the following forms and checklists:

a. Signal Enclosure Inspection Checklist

b. Switch and Lock Movement Checklist

c. Electric Lock Checklist

d. TWC Antenna Checklist

e. Wayside Signal Inspection Checklist

f. Route Selector Inspection Checklist

g. Impedance Bond Inspection Checklist and test form

h. Insulated Joint & Track Wire Connection Checklist

i. Local Control Panel Checklist

j. Test Equipment Calibration form

k. Battery Voltage Record form

l. Battery Charger Settings form

m. Grounds Test form

n. Insulation Resistance Test form

o. Insulated Joint Test form

p. Vital Relay Test form

q. Switch Circuit Controller/Point Detector Test form

r. Switch Obstruction Test form

s. Shunt Fouling Test form

t. AFO Transmitter Settings form

u. AFO Receiver Settings form

v. AFO Transceiver Settings form

w. AFO Crossing Assembly Settings form

x. Signal Lamp Voltage Record form

y. TWC Interrogator Settings form

z. Time Settings Test form

aa. Time Locking Test form

bb. Route Locking Test form

cc. Indication Locking Test form

dd. Change of Direction Test form (i.e. Tumble Down)

ee. CTC Control & Indication Bit form

ff. Highway Grade Crossing Warning Device Inspection Checklist

gg. Solid-State Crossing Controller Setup form

hh. Highway Grade Crossing Warning System Test form

D. The appropriate forms and checklists listed above shall be populated with the location, circuit/device designation, acceptable parameters, etc. and submitted in the Test Procedure package as described in 3.04 A. above.

E. Based upon the results of the first items tested, the Contractor may initiate revisions to the test procedures if approved by the Engineer. Modified test procedures shall be resubmitted to the Engineer for review and shall meet the same submittal requirements indicated unless waived in writing by the Engineer.

F. The test forms and inspection checklist shall include, but shall not be limited to the following information:

1. Title of test.
2. Equipment to be tested, including model and serial numbers.
3. Location and date of test.
4. Step-by-step test procedure to describe how test should be conducted.
5. Acceptable parameters.
6. Test equipment used, including serial numbers and calibration date.
7. Test Results with quantified results such as, voltage and/or current readings, time duration, Pass/Fail results, and equipment settings. Non-quantified Pass/Fail results shall not be acceptable.
8. Signature of the Signal Engineer directing and witnessing the test.

G. Tests required by 49 CFR Part 234 shall be recorded on a form compliant with that Part. Test forms shall be signed and dated by the responsible individual directing/completing the test. Individuals performing the tests shall be qualified and experienced. The Engineer may at any time request a retest, at no additional cost to MTS, if the Engineer deems the individual that completed the test was not qualified or experienced.

3.05 WIRE AND CABLE TESTS

A. Ground Verification Test

1. This test shall verify that the ground resistance at each location is less than 5 ohms.

B. Cable Verification Test

1. This test shall ensure that each exterior cable conductor is correctly installed, has correct nomenclature and is continuous from end to end.

C. Cable Insulation Resistance Test

1. This test shall ensure that each exterior cable conductor meets the minimum conductor-to-conductor and conductor-to-ground resistance.

D. The Contractor shall test all signal bonds and power bonds, to verify that the resistance across the rail connection is not greater than that specified herein.

3.06 GENERAL LOCATION TESTS

A. The Contractor shall perform circuit breakdown tests to ensure all instrument enclosures and connections to field devices are as shown on circuit plans.

B. All metallic wiring shall be tested after installation to ascertain continuity and proper connection according to the circuit plans.

C. Where parallel circuits exist, the Contractor shall test each parallel path independently to verify the continuity of each path.

D. Each function shall be tested as a complete system or subsystem for the correct operation in response to circuit element or contact closure.

E. Equipment operating conditions shall be simulated to verify that circuits operate as designed.

F. Power Verification

1. All fuses shall be removed and all circuit breakers opened to ensure energy is removed from equipment and circuits supplied by the power source.

2. The Contractor shall verify that circuit breaker size and specification compares to that of approved circuit drawings.

3. All energy distribution shall be checked using resistance test instrument approved by the Engineer.

4. The Contractor shall verify that all wire gauges are as called for on approved circuit drawings and that the number of wires on each termination compares with the approved circuit drawings.

5. Check AC power for correct voltage levels and phasing where required.

6. Check all DC power for correct voltage levels.

7. Check and adjust transformer taps where required.

8. Each energy bus shall be tested to all other energy buses to ensure that no shorts, grounds or crosses exist.

9. Check circuit power failure alarms for proper indication to the local control panel, the code system, control office and event recorder.

G. The Contractor shall verify tags for proper nomenclature and terminal location.

H. The Contractor shall ensure all equipment is installed correctly at the location shown on the Contract Plans.

3.07 INTERLOCKING LOCATION TESTS

A. The Contractor shall test each interlocking plant function for correct performance and safety, including simulated unusual conditions, to determine that all equipment will respond in a safe and desirable manner. Functions to be tested shall include as a minimum:

1. Signal indication locking
2. Route locking
3. Time locking
4. Switch locking
5. Switch restoration
6. Switch indication
7. Switch obstruction
8. Switch motor and hand mode of operation
9. Signal light out protection and degradation of aspects
10. Manual and automatic switch and route selection control
11. Route initiation and selection
12. Route completion
13. Signal lighting (aspects)
14. TWC System and interface
15. Ensure opposite polarities of adjacent track circuits across the insulated joints and correct phasing to each track circuit.

3.08 AUDIO FREQUENCY OVERLAY (AFO) TRACK CIRCUITS

A. The Contractor shall perform the following tests and verify the indicated test results:

1. For each track circuit, determine the effectiveness of the filtering. With the transmitter disabled, measure any harmonic noise or crosstalk interference at the receiver to verify compliance with maximum crosstalk level requirements.
2. After adjustment ensure the track circuit is de-energized when shunted with a 0.2 ohm shunt at the receiving end. With the 0.2 ohm shunt removed, the track circuit shall operate normally. Perform the same test with the shunt at the center of the track circuit and again with the shunt placed at the transmitter end.

B. All tests and normal operating parameters shall be recorded for each track circuit.

3.09 INSULATED JOINTS

A. Insulated joint tests shall be performed using the S&C Model 324 Track Circuit Short Finder or an approved equal. Contractor shall use the test procedures provided by the insulated joint tester manufacturer.

3.10 SWITCH APPURTENANCES INSULATION TEST

A. The Contractor shall test the integrity of the insulation of switch appurtenances, using the same method as specified for rail-to-rail testing of insulated joints.

3.11 SWITCH FOULING CIRCUITS

A. The Contractor shall:

1. Visually check that fouling wires (at least two independent parallel conductors) are installed properly and provide a good electrical connection between the main rails of a track circuit and the turnout rails.

2. Test fouling wires by connecting a voltmeter across the main track opposite derail or clearance point and apply shunt to turnout at end of fouling circuit to prove that shunt is effective and associated track relay de-energizes.

3.12 GRADE CROSSING WARNING SYSTEMS

A. This test shall include all applicable testing as described under 49 CFR, Part 234, CPUC G.O. 75-D and CAMUTCD rules, regulations, and standards.

B. The Contractor shall ensure all warning devices are properly installed, adjusted, and operating as follows:

1. Gate arm counterweights shall be adjusted in accordance with gate mechanism manufacturer's recommendations.

2. All gate arms shall descend and recover in unison.

3. Warning devices shall be checked to ensure each device has the proper signage; the proper number of lamp units; that each lamp unit background is 24 inches in diameter; that each lamp unit is properly aligned to provide unrestricted visibility to vehicles and pedestrians; and that devices are plumb and securely fastened to their foundations and supports.

4. LRV detection systems shall be tested to ensure adequate warning time is provided as shown on the Contract Plans and 49 CFR, Part 234 requirements.

5. LRV detection system shall be tested to ensure the warning system is activated at the desired outer approach limit and warning continues until the train completes the movement through the intersection.

6. The system shall be tested to ensure any cutout features that prevent activation of the warning system when a train is within the approach limits, are only active when proper safety measures are in place.

7. The Contractor shall test the block signal system to ensure a proceed aspect cannot be displayed with an opposing directional stick set at any crossing within the block.

8. The Contractor shall record lamp voltage applied to the lamps on each warning device. The voltage reading shall be taken in the junction box on the lamp assembly cross arm and on the gate arm tip lamp on each gate arm.

9. The Contractor shall record all applicable settings, measurements, inspections, readings and observations on the solid-state crossing controller "history card" provided in the controller manufacturer's installation and maintenance manual.

3.13 EVENT RECORDER

A. The Contractor shall:

1. Simulate the signal and highway grade crossing systems to verify that all applicable logic controller application functions are properly recorded.

2. Simulate movements on all routes, in each direction, to verify that the event has been properly recorded.

3. Simulate each alarm function for proper recording operation.

3.14 SIGNAL SYSTEM DEMONSTRATION TESTS

A. Failure of a component of the signaling system, to successfully complete a test shall be cause for rejection and the Contractor shall adjust the component and repeat the test where possible. Should the equipment fail to perform properly on the re-test, or the equipment is not adjustable, the equipment shall be replaced. The Contractor shall reimburse SDTI for its cost associated with retesting.

B. This test shall be performed by simulating train movements using manual track occupancies to test the overall functioning and safety of the signaling and highway crossing warning systems. The Contractor shall include simulated unusual conditions to determine that the interlocking equipment will respond in a safe manner. All the functions of the complete signaling system shall be exercised, including as a minimum:

1. Detection of all revenue vehicles on signaled mainline tracks.

2. Automatic, local control panels, route selectors, and TWC operations.

3. The elimination of conflict arising from two vehicles simultaneously requesting routing through a particular interlocking.

4. Determining that all wayside hardware will be safe for the vehicle prior to permitting any route to be traversed.

5. Proper operation of vehicular traffic signal controller interface and equipment, including cutout features and preemption.

6. Automatic or train-to-wayside (TWC) device routing for all routes at terminals.

7. Nearside Crossing near Station Operational Test: This test shall verify that individual components and subsystems are properly adjusted and functional.

8. The Contractor shall perform tests required to demonstrate compliance with electromagnetic compatibility criteria.

3.15 DYNAMIC OPERATIONAL TESTS

A. The same functions as specified in Article 3.14 of this Technical Specification shall be tested using actual vehicles, including safe braking for only the shortest effective braking distance. SDTI will provide LRVs and the operators, the Contractor shall provide all test procedures, test forms, equipment, wiring and interface for this test.

3.16 CONTRACTOR IN SERVICE CUTOVER TEST REQUIREMENTS

A. The Contractor’s Signal Engineer shall lead all in service cutover testing, including the testing specified in Articles 3.14 and 3.15 of this Technical Specification. These services shall be at no additional cost to MTS.

B. The Contractor shall stage equipment and material during testing to facilitate replacement of defective equipment.

C. To ensure the time required to cutover signal systems handling revenue operation is as short as possible, the Contractor shall:

1. Have personnel mobilized not less than one hour prior to the scheduled start of the cutover.
2. Have the Signal Engineer in attendance at the cutover control point.
3. Make allowance for rotating personnel during shift changes.
4. Provide qualified manpower to each location involved in the cutover testing, as required, to adequately complete all required testing and to make adjustments, changes or corrections to the installation to successfully complete the testing.
5. Provide enough qualified personnel to provide replacement personnel on a 12-hour shift basis for the entire length of the cutover. This also applies to the Contractor's Signal Engineer as required.
6. The Contractor's personnel shall be prepared to make any changes or adjustments to equipment, apparatus or wiring as deemed necessary.
7. The Contractor shall equip personnel with two-way radio units at each location.
8. The Contractor's personnel shall undergo SDTI safety training at the Contractor's expense and observe SDTI Safety Rules while on MTS Property.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will made for Block Signal and Highway Grade Crossing Warning Systems Testing.

4.02 PAYMENT

A. Full compensation for Block Signals and Highway Grade Crossing Warning Systems shall be considered as included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

B. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and installing, testing, removing and relocating each interface case in the field for Segment Phasing Cutovers.

C. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals; and for all the work involved in factory acceptance test witnessing, reporting, accepting, receiving, inspecting, storing the Instrument Enclosures; and for all the work involved in the observation, receipt, evaluation, pretest, certification and acceptance of Owner Furnished safety critical application software.

END OF SECTION

SECTION 34 42 13.29
ABANDONMENT, DEMOLITION, REMOVAL AND DISPOSAL OF EXISTING SIGNAL SYSTEM FACILITIES

PART 1 – GENERAL

1.01 SUMMARY

A. Description:

1. All facilities identified in yellow “out” on the Existing Conditions Track Plans and Control Lines Drawings and described in this Section shall be removed and disposed of by the Contractor as described herein, and in compliance with applicable standards unless directed otherwise by the Engineer.

2. All aerial cable, legacy signal cases, and legacy pole junction boxes identified in brown “out” on the Existing Conditions Track Plans and Control Lines Drawings and described in this Section shall be Optionally removed and disposed of by the Contractor as described herein, and in compliance with applicable standards unless directed otherwise by the Engineer.

3. All facilities not identified on the Contract Plans or described in this Section to be removed, shall be protected in place.

B. Section Includes:

1. Abandonment

2. Salvage

3. Demolition

4. Removal and Disposal of Existing Signal System Facilities

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control

1.02 REFERENCE STANDARDS

NOT USED

1.03 SUBMITTALS

A. The Contractor shall submit an Abandonment, Demolition, Removal and Disposal of Existing Signal System Facilities Plan related to the existing signal system. The Plan shall be submitted at least 60 calendar days prior to beginning the Work identified in this section of Specifications, work shall not begin until the Engineer has approved the Plan.

B. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

1.04 QUALITY ASSURANCE

A. Salvaged equipment and materials shall be protected from theft and damage until such time the materials are delivered and unloaded at the MTS Yard located at 1535 Newton Avenue; San Diego, CA 92113.

B. The Contractor shall not damage or destroy this material and shall protect all salvaged material during the demolition and removal work. The Contractor shall not reuse any removed material without the Engineer's written approval.

C. Existing facilities to be salvaged shall be immediately loaded onto trucks and removed to their predetermined salvage location. No stockpiling of said materials shall occur on MTS property without the expressed approval of the Engineer.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 EQUIPMENT TO BE REMOVED AND SALVAGED

A. Prior to the removal of any material, the MTS representative shall identify equipment to be salvaged.

B. All equipment identified to be salvaged shall be removed and delivered to MTS for storage and reuse, unless otherwise directed by the Engineer. The Contractor shall contact MTS Director of MOW a minimum of 7 calendar days prior to delivering and unloading the materials at the MTS facility. The Contractor shall provide a complete log of materials delivered. The Contractor is responsible for providing all necessary equipment to safely unload salvaged materials at the MTS storage facility.

C. The equipment listed below shall be salvaged and delivered to the MTS Yard located at 1535 Newton Avenue; San Diego, CA 92113. Material salvaged shall be carefully removed and properly packaged for shipment and storage. All other materials shall become the property of the Contractor and disposed of in accordance with federal, state and local ordinances and as specified in these Specifications.

1. Relays and plug-boards as identified by MTS.
2. All PSO Transmitter and Receiver cabinets and modules.
3. All PSO Tuned Receiver Couplers
4. All PLCs
5. All impedance bonds.
6. All switch machines.
7. Other equipment as identified by MTS.

D. Items to be protected in place that are damaged during demolition shall be repaired or replaced as directed by the Engineer at no cost to the MTS. Items to be salvaged that are damaged during removal shall be repaired or replaced as directed by the Engineer at no cost to the MTS.

E. Concrete being removed from the job site shall not be stored in emergency exits, passageways, or adjacent to operating tracks at any time. Such concrete shall be removed from the right-of-way at the end of each day's work. Storage for short periods of time at locations remote from the operating portions of the railroad may be used with written approval of the Engineer.

3.02 EXISTING SIGNS (RETIRED)

A. Where shown on the Contract Plans the Contractor shall remove the existing signs (speed signs, yard limit and other right-of-way signs) completely, including mounting and fastening material and poles. The Contractor shall fill holes in the structure.

3.03 EXISTING CASES (RETIRED)

A. Prior to removal and disposal, the Contractor shall confirm in writing from the Engineer that all existing cases shown on the Contract Plans are no longer required on a temporary or permanent basis.

B. At locations where track cases are to be retired the Contractor shall remove the rail connections and track leads along with all conduit to a depth of 6 inches below finish grade. Where existing underground cabling can be pulled out of existing conduit, the Contractor shall do so. Cabling that is direct buried or will not pull out of existing conduit shall be cut off 6 inches below finish grade.

C. All material and equipment specified above to be removed and salvaged shall be removed and salvaged as described above prior to case removal and disposal.

3.04 EXISTING RAIL CONNECTIONS (RETIRED)

A. The Contractor shall remove existing rail connections not required in the final layout in a manner as described below.

1. Where rail connections consist of welded connection to the rail, the Contractor shall grind off the connection completely and grind the weld level with rail surface.

3.05 EXISTING SIGNAL WIRE AND CABLE (RETIRED)

A. Except as may be otherwise shown on the Contract Plans or specified in these Specifications, the Contractor shall remove and dispose of all existing underground signal wire and cable not required in the temporary or final layout. The Contractor shall remove the wire and cable complete, including all brackets, supporting galvanizing strand wire and fastenings. All existing underground direct buried cable and cable that cannot be pulled out of existing conduit shall be cut at a minimum of 6 inches below the finish grade.

B. Track wires shall be completely removed from the track area and cut a minimum of 6 inches below final grade.

C. All materials removed shall be disposed of by the Contractor as described in this Section.

D. To facilitate the work of the final changeover at certain existing pieces of equipment where new cable is to be installed to replace the existing cable, the Contractor shall remove existing cable from the equipment housing and pull it into the equipment housing again, through the door or handhole rather than the regular cable entrance and temporarily reconnect it to the equipment. During this period, which shall be kept to a minimum, the Contractor shall provide ample protection to the material and equipment so as to prevent the entrance of rain, foreign materials of any kind, or anything, which may cause or tend to cause signal interruptions or interferences or create or tend to create fire hazards. At the time of the final change-over the new cable installed shall be connected to the equipment and the existing cable disconnected and removed.

E. Where cable or wire in duct or conduit is to be removed from service, it shall be removed completely from the conduit or duct and the duct or conduit entrances shall be sealed, all

as approved by the Engineer. If the actual movement for withdrawal of the cable cannot be initiated within thirty (30) minutes, after a Coffin Safety-Pull Ratchet Lever Hoist ("come along") exerting a force of up to three thousand (3,000) pounds has been applied and the cable does not move, the Contractor shall notify the Engineer and request permission to abandon the cable in the conduit or duct and cut cable in conduit 6 inches below grade.

3.06 EXISTING MESSENGER WIRE (RETIRED)

A. The Contractor shall remove all existing messenger wire, except those portions of messenger wire supporting existing cable, which is retained in the temporary or final layout. The Contractor shall remove the messenger wire, including supporting brackets, deadends, insulators, century brackets, hooks, clamps, bolts and other appurtenances.

3.07 EXISTING CONDUIT (RETIRED)

A. The Contractor shall remove existing exposed conduit and pole mounted junction boxes containing cabling related to the existing signaling system that will not be used as part of the final signaling system configuration. The Contractor shall remove the conduit, junction boxes, including all conduit fittings, mounting assemblies and hardware, fastening materials, banding, special brackets and all other appurtenances associated with the signaling system conduit system to a minimum depth of 6 inches below finish grade.

B. Where it may be necessary to remove conduit that is buried in concrete that is to remain in place, the conduit shall be removed to a point below the top of the concrete. The hole shall be filled with concrete and neatly grouted.

C. Where conduits are buried in earth, the conduit shall be removed six (6) inches down from top of grade. The conduits under tracks shall be abandoned.

3.08 EXISTING CONCRETE FOUNDATIONS (RETIRED)

A. At locations where signals or other equipment is shown or specified to be removed in the contract documents, concrete foundation and concrete sidewalk and pads associated with them shall be removed to not less than six inches below finish grade. All demolished materials shall be disposed of by the Contractor. All signals, or other signaling equipment that currently exists within the right-of-way and within the project limits but is not shown on the final configuration signal layout drawings shall be removed, unless directed otherwise in writing by the Engineer.

B. At locations where an existing foundation associated with a signal, or other equipment is surrounded by finished pavement, the Contractor shall furnish and install pavement and base material matching the existing pavement and base material to completely fill in the hole left after the foundation is removed. The pavement shall match the color and texture and thickness of the surrounding pavement.

C. Foundation removal typically shall include the demolition of the foundation top down to a level not less than 6 inches below final grade, including the removal of all reinforcement and anchor bolts to be flush with the final demolished concrete top. The Contractor shall backfill all open foundation holes and excavations, and all demolished foundation material shall be removed from the work site and disposed of at no additional cost the MTS.

D. The Contractor shall not reuse existing signal foundations, unless directed to do so by the Engineer in writing. Existing foundations that are in conflict with the location of a new

wayside signal foundation, flashing light signal foundation, or flashing light cantilever signal foundation shall be completely removed and disposed of by the Contractor.

E. The Contractor will be permitted to remove the concrete in one or more pieces, but broken pieces must be completely removed from the job site and shall not be mixed with ballast or fill. The Contractor shall do all digging, removing, replacing and tamping of ballast or fill, including the furnishing of necessary ballast for backfilling all holes caused by removal of the concrete foundations. The removal of concrete foundations and pads shall be as approved by the Engineer.

F. Concrete being removed from the job site shall not be stored in emergency exits, passageways, or adjacent to operating tracks at any time. Such concrete shall be removed from the right-of-way at the end of each day's work. Storage for short periods of time at locations remote from the operating portions of the railroad may be used with written approval of the Engineer.

3.09 EXISTING IMPEDANCE BONDS (RETIRED)

A. The Contractor shall remove the existing impedance bonds complete, including the rail connection, ties, and mounting hardware, as shown on the Contract Plans. Existing impedance bonds shall be salvaged and returned to SDTI at an approved site.

B. The Contractor shall fill all holes left on the ground or structure by removal of impedance bond equipment.

3.10 EXISTING SIGNAL POWER DISTRIBUTION SYSTEM (RETIRED)

A. The Contractor shall remove existing power distribution system completely, including meter pole, feeders, transformer, wire and cable and auxiliary material and equipment.

3.11 EXISTING JUNCTION BOXES (RETIRED)

A. Existing equipment boxes no longer required in the final layout shall be removed from the job site. The Contractor shall remove these boxes completely, including all mounting and fastening materials, conduit, trunking, wire, and cable. The Contractor shall fill all holes on the ground or structure as a result of removing the equipment boxes.

3.12 EXISTING MATERIAL AND EQUIPMENT (RETIRED)

A. The Contractor shall remove no longer used material and equipment from the cases. All relays including bases and other equipment specified for salvage shall be removed, properly packaged and shipped for storage. All other equipment shall be disposed of as specified in these Specifications.

B. The Contractor shall plug all holes left in structures and rail ties resulting from the removal of equipment fasteners and shall paint all steel exposed when equipment is removed.

C. At locations where track cases are to be removed, the Contractor shall remove the rail connections and track leads and abandon the conduit in place unless it interferes with final signal layout or structure, in which case the conduit shall be removed. Where the cases are mounted on the concrete floor by means of expansion bolts, the bolts shall be extracted and the concrete finished to conform with the rest of the structure in a manner approved by the Engineer.

D. Rail connections consisting of steel pins driven into the rail shall be removed by driving the bond pins from the rail. Where rail connections consist of clamps, the Contractor shall remove the clamps.

E. Rail connections connected to a solderless connector, which is fastened by means of nuts to a threaded tapered pin driven into the rail, shall be removed by backing off the nuts on the tapered pin and driving the pin from the rail by using a rail connector starting tool and a three pound (3-lb.) hammer.

F. Welded rail connections shall be removed by grinding off the connection, for 6 AWG and larger cable, otherwise the connection can be removed without grinding. The Contractor shall remove the rail connections completely including wire, conduit, fittings, cast-iron bootleg riser and junction boxes, all as approved by the Engineer.

G. Where existing cable or wire is buried in the ground it shall be cut 12 inches below finish grade and the remaining buried cable shall be abandoned in place unless it interferes with final signal layout or structure. The Contractor shall not leave any portions of the cable above ground.

H. The Contractor shall remove all supporting brackets, dead-ends, insulators, century brackets, hooks, clamps, bolts, unnecessary downguy assemblies and other appurtenances when wire or cable is removed.

I. The Contractor shall remove existing exposed conduit not required in the temporary or final layout, including all conduit fittings, all mounting, banding and fastening materials and special brackets. The Contractor shall fill all holes and paint all surfaces exposed by the removal of the conduit.

J. Where equipment has been removed and conduit stub-up(s) are no longer required and the Engineer determines the existing pavement shall be protected in place, the conduit shall be removed to a point one inch (1 inch) below the top of the concrete. The hole shall be filled with concrete and neatly grouted.

3.13 OPTION - EXISTING AERIAL SIGNAL WIRE AND CABLE (RETIRED)

A. This Option shall be broken down by Segment and will be exercised at the discretion of MTS by Segment.

B. Except as may be otherwise shown on the Contract Plans or specified in these Specifications, the Contractor shall remove and dispose of all existing aerial signal wire and cable not required in the temporary or final layout. The Contractor shall remove the wire and cable complete, including all brackets, supporting galvanized strand wire and fastenings.

C. All materials removed shall be disposed of by the Contractor as described in these Specifications.

D. The removal of the retired aerial signal wire and cable shall not proceed unless the option is incorporated into the Contract via an approved Change Order.

E. The Work associated with this Option is for the removal of aerial cable (from the originating pole junction box) beginning at the top of the pole riser, including the entire aerial cable span(s), and ending at the top of a pole riser (at the terminating pole junction box) only. Should the Option for a Segment not be executed, the aerial cable shall remain in place, but the Contractor shall be required to remove all associated junction boxes on the poles

where the aerial cable is terminated (confirming all cable is abandoned) and cut all abandoned aerial cable where the aerial cable exits the riser on each end as part of the base bid Work.

3.14 OPTION – LEGACY CASES AND POLE JUNCTION BOXES (RETIRED)

A. This Option will be exercised at the discretion of MTS.

B. The removal of the retired legacy cases, foundations, and pole junction boxes shall not proceed unless the option is incorporated into the Contract via an approved Change Order.

C. All material and equipment specified to be removed and salvaged shall be removed and salvaged as described above prior to case removal and disposal.

D. Once confirmed that the case is no longer required the entire case shall be removed and disposed of, including all mounting and fastening material, any main electrical or sub-panel, conduit, internal wire and cable.

E. Existing Case Foundations

1. At locations where cases are shown or specified to be removed in the contract documents, concrete foundation and concrete sidewalk and pads associated with them shall be removed to not less than six inches below finish grade. All demolished materials shall be disposed of by the Contractor.

2. At locations where an existing foundation associated with a case is surrounded by finished pavement, the Contractor shall furnish and install pavement and base material matching the existing pavement and base material to completely fill in the hole left after the foundation is removed. The pavement shall match the color and texture and thickness of the surrounding pavement.

3. Foundation removal typically shall include the demolition of the foundation top down to a level not less than 6 inches below final grade, including the removal of all reinforcement and anchor bolts to be flush with the final demolished concrete top. The Contractor shall backfill all open foundation holes and excavations, and all demolished foundation material shall be removed from the work site and disposed of at no additional cost the MTS.

4. The Contractor will be permitted to remove the concrete in one or more pieces, but broken pieces must be completely removed from the job site and shall not be mixed with ballast or fill. The Contractor shall do all digging, removing, replacing and tamping of ballast or fill, including the furnishing of necessary ballast for backfilling all holes caused by removal of the concrete foundations. The removal of concrete foundations and pads shall be as approved by the Engineer.

5. Concrete being removed from the job site shall not be stored in emergency exits, passageways, or adjacent to operating tracks at any time. Such concrete shall be removed from the right-of-way at the end of each day’s work. Storage for short periods of time at locations remote from the operating portions of the railroad may be used with written approval of the Engineer.

F. Pole Junction Boxes

1. The following 50 Pole Junction Boxes (PJBs) will be removed from the OCS pole and disposed:

a. E1664JB

b. E1653JB

c. E1641JB

d. E1620JB

e. E1607JB

f. E1585JB

g. E1573JB

h. E1566JB

i. E1560JB

j. E1532JB

k. E1528JB

l. E1527JB

m. E1500JB

n. E1487JB

o. E1473JB

p. E1468JB

q. E1442JB

r. E1416JB

s. E1407JB

t. E1400JB

u. E1392JB

v. E1384JB

w. E1371JB

x. E1372JB

y. E1353JB

z. E1351JB

aa. E1340JB

bb. E1320JB

cc. E1298JB

dd. E1297JB

ee. E1297AJB

ff. E1279JBA

gg. E1279JB

hh. E1220JB

ii. E1213JB

jj. E1202JB

kk. E1196JB

ll. E1192JB

mm. E1175JB

nn. E1143JB

oo. E1102JB

pp. E1071JB

qq. E1071JBA

rr. E1070JB

ss. E1037JB

tt. E997JB

uu. E966JB

vv. E953JB

ww. E925JB

xx. E886JB

3.15 POLE JUNCTION BOX WIRE AND CABLE REMOVAL (RETIRED)

A. Contractor shall note that the Base Bid Work includes the demolition of the aerial wire and cable from the pole junction box on the pole to the point at which the cable exits the pole spout or cable riser.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Abandonment, Demolition, Removal and Disposal of Existing Signal Systems Facilities.

4.02 PAYMENT

A. Full compensation for Abandonment, Salvage, Demolition, Removal, and Disposal of Existing Signal System Equipment and Facilities as part of the Base Bid Work shall be considered included in the contract price paid for the Signal Location Complete closest to the Work, therefore no separate payment will be made.

B. Payment for Optional Salvage, Demolition, Removal, and Disposal of Existing Legacy Signal Cases, their Foundations, and Pole Junction Boxes shall be at the item pricing shown on the Contract Bid Item List for each Case, group of Cases, or group of pole junction boxes, and shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with determination of salvage equipment and cases, salvage and delivery of identified equipment within each case, case salvage as identified, removal and disposal of abandoned Cases, their foundations and pole junction boxes as described herein.

C. Payment for Optional Removal of Abandoned Aerial Cable shall be at the item pricing shown on the Contract Bid Item List for each Segment and shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with removal and disposal of Abandoned Aerial Cable, including delashing the abandoned aerial cable and relashing other existing active aerial cables after removal.

END OF SECTION

SECTION 34 42 16
TRAIN CONTROL WIRE AND CABLE

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes furnishing and installing all cable and wire required for signal and signal power system wiring to wayside signals, junction boxes and factory wired mechanisms. Cables shall be furnished and installed as specified herein and as shown on the Contract Plans.

B. Section Includes:

1. Train Control Wire and Cable

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.18 – Instrument Enclosures
4. Section 34 42 13.19 – Signal System Grounding
5. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. ASTM International (ASTM):

1. ASTM B3 – Soft or Annealed Copper Wire
2. ASTM B8 – Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
3. ASTM B33 – Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
4. ASTM D3159 – Modified ETFE-Fluoropolymer Molding and Extrusion Materials

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Product Data: Manufacturer’s catalog cuts, material descriptions and specifications for each type of wire and cable the Contractor proposes for use.

C. Submit the results following tests conducted during manufacturing of all applicable wires and cable:

1. Conductor size and physical characteristics.
2. Insulation HV and IR tests.

3. Physical dimension tests.

4. Special tests on materials in coverings.

5. Final HV, IR and conductor resistance tests on shipping reels.

D. Submit conduit plans showing any modifications (if necessary) to the Site Specific Layout drawings for all locations, including “no changes necessary” notation on locations that have no exceptions.

1.04 QUALITY ASSURANCE

A. Material and workmanship shall be of the highest quality, assuring durability for minimum life expectancy of 40 years. Cables to be furnished and installed shall be suitable for use in the environment to be encountered on a railroad signal system and shall be certified for continuous operation at 75 degrees Celsius, in wet or dry locations, with no conductor failing in continuity or with loss of insulation to cross or ground less than one meg-ohm.

B. Cable manufacturer’s qualifications shall be as follows:

1. Past Performance and Experience: Demonstrated previous successful experience in supplying cable to the railway or transit industry for use as vital signal control cables. A list of such installations shall be provided for each cable manufacturer to be considered.

2. Quality Control Program: The manufacture of cables in accordance with the requirements of this Specification shall be accomplished in compliance with a Quality Control Program that meets the intent of the American National Standard Institute (ANSI)/American Society for Quality (ASQ) Standard C1; general reinstatement provided for in this subparagraph shall apply only to the first replacement or repair of any such item and, in the case of failure of major importance, to the first extension of the said warranty to said affected items.

3. The Engineer shall have the right to make inspections and tests, as necessary, to determine if the cable meets the requirements of this Specification. The Engineer shall have the right to reject cable that is defective in any respect.

1.05 DELIVERY, STORAGE AND HANDLING

1. Shipping, storage, and handling shall be in accordance with AREMA C&S Manual, Part 10.4.1 and 10.3.17.

2. During storage and handling, prior to final conductor termination, cable ends shall be sealed to prevent the entrance of moisture.

3. Any instance of damaged cable observed at any time, whether prior to installation, occurring during construction, or discovered by test observation subsequent to installation, shall be immediately called to the Engineer’s attention in writing by the Contractor. The method of correction shall be in accordance with the Engineer’s written instruction. The Contractor shall promptly repair such damage and re-test the cable per approved procedures and re-submit the results for Engineer’s review.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Internal Wire and Cable

1. Individual cable makeup and conductor sizes shall be as shown on the Contract Plans.

2. Internal wire shall be Okozel type Z manufactured by Okonite Co. or approved equal.

3. Unless otherwise specified herein, internal wire and cable shall conform to AREMA C&S Manual, Part 10.3.14.

4. Conductors shall be soft and annealed copper per ASTM B3 and tin coated in accordance with ASTM B33.

5. Stranded conductors shall be in accordance with ASTM B8, Class B.

6. Signal instrument enclosure and case internal wire and cable insulation shall conform to AREMA C&S Manual Part 10.3.24, unless otherwise specified herein and the following requirements:

   a. Insulation shall be modified ethylene tetrafluoroethylene (ETFE) conforming to ASTM D3159, unless otherwise specified.

   b. The minimum insulation rating shall be 600 volts.

7. Wiring within an instrument enclosure shall be neatly arranged and laced, or enclosed in plastic tubing or raceway; be properly tagged and labeled; and shall have sufficient slack as described in Part 10.4.1 of the AREMA C&S Manual. Stranded conductors shall be terminated with compression type eyelet terminals and installed using compression crimping tool which prevents opening of the handles until the crimp is completed. Solid wire shall be formed in eyelets using a proper eyelet forming tool. In forming the eyes or applying terminals to the ends of wires, the wires shall not be nicked or twisted.

B. External Wire and Cable

1. General

   a. Individual cable makeup and conductor sizes shall be as shown on the Contract Plans.

   b. Conductors shall be soft or annealed copper per ASTM B3.

   c. Stranded conductors shall be in accordance with ASTM B8, Class B.

2. Track Wire

   a. Track wire shall be two single conductor No. 6 AWG solid jacketed wires twisted two turns per foot. Track wire shall be Okonite-Okolene manufactured by Okonite Co. or approved equal.

   b. Where not otherwise specified herein, track wire shall be underground type that meets the requirements of AREMA C&S Manual, Part 10.3.16. Track wire jacket shall be polyethylene and the insulation shall be ethylene-

propylene. Jacket and insulation average thickness shall not be less than the following minimums:

1) Jacket = 60 mil.

2) Insulation = 90 mil.

3. Cable in Conduit

a. Cable to signals, switches, highway warning devices and express cable between instrument enclosures shall be Underground Signal Cable manufactured by Okonite Co. or approved equal. All cable between the enclosure and the equipment, including direct burial cable, shall be installed in conduit and pull boxes, except at rail connection points shown on the Contract Plans.

b. Conductors number 6 AWG and greater shall be solid. Conductors number 4 AWG and lessor shall be stranded.

c. Unless otherwise specified herein, direct burial cable shall meet the recommendations of AREMA C&S Manual, Part 10.3.17. Cable conductors shall be printed with a number for easy identification of the conductor. Conductor insulation shall be ethylene-propylene rubber and cable jacket shall be made of polyethylene. Jacket and insulation average thickness shall not be less than the following minimums:

1)	3 Conductor No. 6 AWG	Jacket = 95 mil	Insulation = 80 mil
2)	5 Conductor No. 6 AWG	Jacket = 95 mil	Insulation = 80 mil
3)	7 Conductor No. 6 AWG	Jacket = 95 mil	Insulation = 80 mil
4)	7 Conductor No. 9 AWG	Jacket = 80 mil	Insulation = 60 mil
5)	7 Conductor No. 14 AWG	Jacket = 95 mil	Insulation = 60 mil
6)	12 Conductor No. 14 AWG	Jacket = 95 mil	Insulation = 60 mil

d. Power Cable

1) Power cable shall be X-Olene Type XHHW-2 Power and Control cable as manufactured by Okonite Co., or approved equal. The ground cable shall have a green jacket.

PART 3 – EXECUTION

3.01 INSTALLATION – CABLES ENTERING INSTRUMENT ENCLOSURES

A. Exterior cable entering instrument enclosures and junction boxes shall have sufficient length to extend to within 6 inches of the top of the instrument enclosure and then run down to the applicable terminal post at which it is terminated. Cables shall be neatly arranged and laced, or enclosed in plastic tubing or raceway; be properly tagged and labeled; and shall have sufficient slack as described in Part 10.4.1 of the AREMA C&S Manual. Stranded conductors shall be terminated with compression type eyelet terminals and installed using compression crimping tool which prevents opening of the handles until the crimp is completed. Solid wire shall be formed in eyelets using a proper eyelet forming tool. In

forming the eyes or applying terminals to the ends of wires, the wires shall not be nicked or twisted.

3.02 UNDERGROUND CABLE INSTALLATION

A. General

1. The installation of wire and cable shall conform to AREMA C&S Manual Parts 10.4.1 and 10.4.30, except as specified herein.

2. Underground cable and track wire shall be routed through conduit and pull boxes between equipment enclosures and from equipment enclosures to switch apparatus, signal junction boxes, warning device junction boxes, pole junction boxes, track hand holes, meter services and other apparatus. This routing may include existing conduit and pull boxes. The Contract Plans represent the recommended routing of cables. Provide sufficient cable slack in pull boxes for relocation of apparatus up to 5 feet.

3. The Contractor shall provide 48 hours (or two working days) notice to the Engineer prior to installing any cables.

4. Provide sufficient slack in cable conductors at all terminating posts to enable three re-terminations of the conductor, due to broken eyelets without resurfacing or re-potheading the cable.

5. In certain types of installation, the cable cannot be constrained; therefore, ample cable slack shall be provided for additional flexibility due to vibration of such equipment.

6. Cables shall not be bent to a radius less than the manufacturer's recommendation. Sheaves shall be used where necessary during installation to maintain minimum bending radius.

7. Distribution cable runs shall be continuous without splices between cable terminating locations. Express cable runs longer than cable lengths shall be terminated in a junction box, instrument case, or other acceptable enclosure.

8. Individual cable conductors shall be identified at each cable termination with plastic tags, as specified in these Specifications. All spare conductors in each cable shall be identified and terminated.

9. Cable entrance openings in equipment enclosures and junction boxes shall be sealed with either compression type fitting or pliable sealing compound after the cable is in place. Sealing compound shall be used to seal the area around cable where the cable emerges from the end of a conduit or pipe. All spare conduits shall be sealed or plugged.

10. Wherever multiple conductor cables are terminated, the outer sheath of the cable shall be carefully removed to a minimum point of 3 inches from the cable entrance. At the end of the cable sheath or covering, two layers of plastic electrical tape shall be applied.

11. All cable conductors shall be terminated in conductor sequence from top to bottom.

12. The potheading of buried cables shall be applied whenever cable is terminated in signal equipment and such termination is within two feet of the grade level. This neoprene and seal pothead shall be installed in accordance with the manufacturer's instructions.

13. Cables shall not cross one another when they are pulled into a conduit or pipe and care shall be taken not to have the conductors pulled tight or kinked in conduit fittings or boxes. All cables to be installed in a conduit or pipe shall be pulled and installed simultaneously.

B. Special Protection

1. Provide appropriate special protection for cables in areas where the cables are unavoidably exposed to hazardous conditions, such as vibration or sharp corners on equipment. The Contractor shall be responsible for replacing, at no additional cost to MTS, any cable that is installed but subsequently damaged prior to acceptance as a result of the Contractor's failure to provide such special protection.

3.03 TESTING

A. All installed external cable shall be tested in accordance with the requirements of Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing and AREMA C&S Manual, Part 10.4.30.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Train Control Wire and Cable.

4.02 PAYMENT

A. The Contract lump sum price paid for Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with wiring, labeling, material installing, and installing, removing and relocating each interface case in the field for Segment Phasing Cutovers.

B. All remaining compensation for Train Control Wire and Cable shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

C. The Signal Location Complete item for Train Control Wire and Cable shall be determined by the location where wire and/or cable originates.

END OF SECTION

SECTION 34 42 19.01
VITAL LOGIC CONTROLLER

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes installing, testing, and documenting an Owner Furnished vital microprocessor-based controller that provides the functionality as shown on the Contract Plans. Specifications for the vital microprocessor-based controller, local control panel, and local control panel computer are also included for Alternate Rail Signal Spare Parts.

B. Section Includes:

1. Vital Logic Controller
2. Local Control Panel
3. Local Control Panel Computer

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 13.13 – General Railway Signal Requirements
3. Section 34 42 13.14 – Route Control Equipment
4. Section 34 42 13.17 – Track Circuits
5. Section 34 42 23 – Railway Control Equipment
6. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

B. The following parts of the Code of Federal Regulations (CFR), Title 49, Transportation shall apply:

1. 49 CFR Part 234 – Grade Crossing Safety
2. 49 CFR Part 236 – Rules, Standards, and Instructions Governing the Installation, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

1.04 QUALITY ASSURANCE

A. The controller shall be tested in accordance with all applicable requirements of 49 CFR, Part 234, Part 236 and AREMA C&S Manual. The Contractor shall perform operational testing of the equipment in accordance with the requirements specified herein.

1.05 DELIVERY, STORAGE AND HANDLING

A. Solid-state modules shall be shipped separately from the wired card cages. Modules shall be packaged individually in a sturdy carton with the type of module printed on the outside of the carton. All materials shall be stored in a protected area until delivered to MTS as Optional Spare Material.

B. Vital Logic controllers and Local Control Panels shall be Owner Furnished as components within the Singal Instrument Enclosures.

PART 2 – PRODUCTS

2.01 LOGIC CONTROLLER

A. Logic controllers shall be an ElectroLogIXS Vital Logic Controller as manufactured by Alstom.

B. The interlocking controller shall be capable of operating 12 VDC vital and non-vital relays. Vital input/output modules shall accommodate a minimum of 8 inputs and 6 outputs from a single module.

C. The module used to operate wayside signal lamps shall be capable of directly driving a minimum of 16 each 10 VDC, 18 watt, 25 watt, or LED lamps through isolated lamp driver outputs for on, off, and flashing. Flashing shall be at a nominal rate of 55 flashes per minute. Controller shall provide tumble-down indications based upon light-out detection using both hot and cold filament checking.

D. The interlocking controller shall have the capacity to serially connect a device that will generate and receive Electro-Code track circuits without use of relay interfacing.

E. The interlocking controller shall have the ability to serially connect with existing ElectroLogIXS units utilized on MTS properties.

F. The software associated with assuring the vitality of the system shall be an inherent part of the basic controller system and shall not be accessible for modification by the user. Changes to the application logic installed in the system shall not require re-verification of the software associated with assuring system vitality. The application logic shall be protected so that it is user modifiable by authorized personnel only.

G. The compiler used in developing the site-specific application logic software shall be designed to allow the user to construct individual logic equations utilizing “ladder-logic” display elements. Reports generated by the compiler shall provide the user with a complete and detailed description of the system configuration including, but not limited to, module location assignments, internal timer settings, auxiliary input/output assignments, vital lamp output assignments, CTC control and indication bit assignments, electronic track code circuit assignments, data recorder equation selection, remote input/output assignments, and module plug-connector pin assignments.

H. The interlocking controller shall provide event recording. The event recording capability within the controller shall be designed so that the correct time is maintained when the vital

logic and/or code system equipment is reset or powered down. The event recording equipment shall have sufficient storage capacity to store a minimum of 100 train movements through the interlocking, recording user selected status changes along with diagnostically important internal status changes.

I. The interlocking controller shall provide mitigation for “processor failure” via a fall-back relay.

J. The interlocking controller shall interface with the solid-state track circuit detailed in Section 34 42 13.17, Track Circuits.

K. The failure of an output shall not cause loss of functions not associated with those of the failed module.

L. The interlocking controller shall operate from a standard 12 VDC signal battery supply. Any special power supply filtering devices required for reliable operation shall be provided as a part of the system.

2.02 LOCAL CONTROL PANEL

A. The Local Control Panel shall be composed of two components, a local control panel board and a local control panel computer.

B. Local Control Panel Board

1. The local control panel shall be the QLCP-NET with Ethernet port manufactured by QuEST Rail,LLC or approved equal.

2. The local control panel board shall have the ability to communicate via RS-232, RS-485, 2000 Vrms isolated Current Loop and Ethernet, with support for Hitachi Rail PEER protocol and Alstom LCP protocol.

3. The local control panel board shall contain an integrated power supply compliant with AREMA Wayside Class C requirements.

4. The local control board shall be capable of being configured via a USB port.

5. The local control panel board shall provide 128 physical inputs and 128 physical outputs.

6. The local control panel board shall be capable of being configured as a soft local control panel. The software for building and operating the soft local control panel shall be opened sourced, allowing the client or end user to make or modify LCP designs. The software shall not require licensing. The software shall have the ability to program passcodes to protect soft controls.

7. The local control panel board shall be housed in an aluminum enclosure that is rack mountable.

C. Local Control Panel Computer

1. The local control panel computer shall be part number VTPC190R NEMA 4 9U rack mount all-in-one LCD computer manufactured by Vartech Systems, Inc. or approved equal.

2. The local control panel computer shall have a 19” ARMOR touch resistive screen or approved equal where a stylus, finger or glove may be used for operation. The

touchscreen shall be waterproof, chemical and scratch resistant, have a hardness of 6.5 Mohs, and allow for over 200 million touches.

3. The local control panel computer shall have a reliability rating of 100,000 hours MTBF.

4. The local control panel computer shall be equipped with an Intel Celeron 2.0 GHz Quad Core Processor, 2 GB DDR3L-1333 system Memory, 512 Solid State Hard Drive, Window 10 Professional operating system, 12 volts DC isolated power input, an On/Off Button mounted on the front panel and conformal coating of internal electrical boards.

2.03 SIGNAL NETWORKS

A. The following Signal Networks shall be provided with the system:

1. Two dedicated signaling networks shall be provided: a vital signal network and a signal maintenance network. Additionally, a connection to the central control office shall be available at all interlockings.

2. The vital network shall be a closed, protected network for the transmission of vital signal information between signal locations. This shall be a 2-fiber single mode (2SM) fiber optic transmission system. The signal supplier shall provide hardened, industrial communication switches, which provide the interface between the fiber system and the signaling equipment. The interface to the signaling equipment shall be Ethernet. An additional port shall be provided in each signal room, which provides for the ability to access the CPUs and programs in other locations.

3. The maintenance network shall provide for remote access to the VLCs. The signal supplier shall provide hardened, industrial communication switches, which provide the interface between the fiber system and the equipment. The interface to the equipment shall be Ethernet.

4. The interface to the central control office shall be either an RS232 or Ethernet connection provided by the signal equipment. Protocol shall be Genisys.

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

A. The logic controller shall be installed as shown on the Contract Plans.

B. Each item shall be protected from damage or loss during handling and shipment. All test and diagnostic equipment shall be available on site at least 30 calendar days prior to installation.

C. Each controller unit shall be clearly identified on the packing crate, referencing its intended location.

3.02 TESTING

A. The Contractor shall install and perform all applicable tests in accordance with Section 34 42 13.28, Block Signal and Highway Grade Crossing Warning Systems Testing to ensure that the logic controller software has been installed and made operational as part of the operating signal system. Verification of such tests shall be provided to the Engineer.

B. The Contractor shall conduct tests as specified in AREMA C&S Manual Parts 2.4.1 and 7.4.1, to ensure proper operation of the signal system.

C. The Contractor shall conduct tests to ensure that the grade crossing system conforms to 49CFR, Part 234.

D. The Contractor shall conduct tests to ensure that the signal system conforms to 49CFR, Part 236.

3.03 SAFETY CERTIFICATION

A. 49 CFR 674 requires a Safety Certification Program to be in place for this Project with the CPUC designated as State oversight. The Orange Line Phase 2 Project has been classified as a Major Project due to its replacement of the existing train control system with more modern technology.

B. A Safety Certification Plan has been submitted to the CPUC which defines the following Segments for construction, testing, and the requirement to receive safety certification for each prior to beginning revenue service. Each Segment transition occurs at an Interlocking location, where an interface can be arranged to accommodate both the existing and new train control technology.

C. The Contractor shall support MTS to complete, document and verify Safety Certification Tasks that shall require timely delivery of Contractor led items, including but not limited to integration testing and associated test documentation, dynamic testing, operations/maintenance manual submission, and asbuilt documentation

D. Each Segment shall receive separate certification and cannot be placed into service without CPUC approval.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Vital Logic Controller.

4.02 PAYMENT

E. The Contract lump sum price paid for Owner Furnished Signal Material Handoff shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with receiving, inspecting, reporting, accepting, managing, transporting, and storing Owner Furnished Vital Logic Controller, Local Control Panel, and Local Control Panel Computer.

F. All remaining compensation for Vital Logic Controller shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 23
RAILWAY CONTROL EQUIPMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes requirements for Contractor furnished equipment related to all Sections within Division 34 42 as required for a complete and operating train control and highway grade crossing warning system.

B. Section Includes:

1. Railway Control Equipment

C. Related Sections:

1. Section 34 42 01 – Transportation Signaling and Control
2. Section 34 42 02 – Spare Parts
3. Section 34 42 13.13 – General Railway Signal Requirements
4. Section 34 42 13.14 – Route Control Equipment
5. Section 34 42 13.15 – Battery and Charging Equipment
6. Section 34 42 13.17 – Track Circuits
7. Section 34 42 13.18 – Instrument Enclosures
8. Section 34 42 13.19 – Signal Systems Grounding
9. Section 34 42 13.20 – Relays
10. Section 34 42 13.21 – Miscellaneous Signal System Products
11. Section 34 42 13.22 – Switch and Lock Movement
12. Section 34 42 13.24 – Wayside Signal Assembly
13. Section 34 42 13.25 – Rail Bonding
14. Section 34 42 13.26 – Highway Grade Crossing Warning Systems
15. Section 34 42 13.27 – Painting and Galvanizing
16. Section 34 42 13.28 – Block Signal and Highway Grade Crossing Warning Systems Testing
17. Section 34 42 13.29 – Abandonment, Demolition, Removal and Disposal of Existing Signal Systems Facilities
18. Section 34 42 16 – Train Control and Wire
19. Section 34 42 19.01 – Vital Logic Controller
20. Section 34 42 26.13 – Signal System Fiber Optic Network

1.02 REFERENCE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA):

1. Communications & Signals (C&S) Manual of Recommended Practice

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

1.04 QUALITY ASSURANCE

A. All materials and equipment for installation and for interconnection of the various systems shall be fabricated, furnished and installed as shown on the Contract Plans and specified herein. Signaling materials and equipment shall be the products of manufacturers regularly engaged in the production of such material and equipment and shall be the manufacturer's latest design. All "or equal" equipment or materials, not shown on the Contract Plans but proposed by the Contractor, shall have shown proven performance in the United States of America for a minimum of 3 years. Materials and equipment shall be delivered to the jobsite in unbroken packages, reels, or other forms of containers.

B. All materials and equipment provided by the Contractor shall be new. All materials and equipment shall conform to the recommendations of AREMA C&S Manual, except as modified in the Specifications and Contract Plans.

C. Reference to specific equipment and/or manufacturers is intended to establish quality, overall design and fit, subject to compliance with all criteria specifications. Certain equipment shown on the Contract Plans and indicated in the Specification shall be required to ensure compatibility with the existing system. Equipment equal to or exceeding the Specifications and requirements may be used subject to the Engineer's written acceptance. Should alternate equipment be approved, the Contractor shall perform all necessary work to fit the alternate equipment to these Specifications and to revise the Contract Plans at no additional cost to MTS.

PART 2 – PRODUCTS

2.01 EQUIPMENT - ENVIRONMENTAL PARAMETERS

A. All Contractor provided material and equipment shall be fully operable with no impairment resulting from the effect of the environment throughout the range of worst values indicated below. The general operating environment shall be considered to be in a coastal atmosphere and in generally sunny weather.

1. Ambient outdoor temperature range: from negative 40 degrees Celsius to plus 70 degrees Celsius.

2. Relative humidity range: from 0 to 100 percent.

3. Maximum rainfall: 4 inches in 24 hours and 1.5 inches in 1 hour.

4. Maximum wind velocity: 100 miles per hour.

5. The project is in Seismic Zone 4 earthquake region (earthquake requirements in San Diego, CA region).

6. Provisions shall be made to ensure equipment within the instrument enclosures and relay cases are securely anchored or otherwise fastened after the enclosure has been delivered to the job site and installed by the Contractor.

7. Securing equipment shall not negate the requirements to maintain isolation between ground systems as otherwise called for in these Specifications.

8. Isokeraunic level: five per year.

PART 3 – EXECUTION

NOT USED

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Railway Control Equipment.

4.02 PAYMENT

A. Payment for procurement of Railway Control Equipment shall be included in the contract price paid per Signal Location Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 26.13
SIGNAL SYSTEM FIBER OPTIC NETWORK

PART 1 – GENERAL

1.01 SUMMARY

A. Description: This Section includes furnishing, installing, splicing, testing, and commissioning MTS fiber optic network as described herein and as shown on the Contract Plans. Certain fiber optic equipment is Owner Furnished within the Signal Instrument Enclosures, as shown on the Contract Drawings.

B. Section Work Includes:

1. MTS Fiber Optic Network as herein described and shown on the Contract Plans

a. Orange Line Fiber Between Massachusetts Station and Baltimore Junction

1) Existing 144 Fiber Optic Cable Backbone

a) The Orange Line has an existing 144 strand fiber optic cable installed along the entire alignment, either aerially lashed to messenger wire on the Overhead Catenary System or underground in conduit (typically at or near stations).

b) The applications utilized within this cable include:

i) Signal CTC communications to Central Control (Indications only)

ii) Traction Power Substation information

iii) Station Communications

c) The 144 fiber optic cable backbone will require modification to transition CTC from the legacy programmable logic controller (PLC) to the ElectrologIXS office connection. At certain locations indicated in the Contract Drawings, there is a requirement splice fiber cable after signal cutover to remove a legacy lateral cable that will not be replaced in the new system.

d) Reference the Contract Drawings to determine whether the fiber is aerial or underground at the locations shown where 144 fiber optic cable backbone access is recommended. When new lateral cables are called for in the Plans, the lateral shall be 24 strand fiber optic cable.

2) Existing 24 Fiber Optic Cable Backbone

a) The Orange Line has an existing 24 strand fiber optic cable installed along the entire alignment, either aerially lashed to messenger wire on the Overhead Catenary System or underground in conduit (typically at or near stations).

b) A single application is utilized within this cable:

i) Switch network to transport Signal CTC Communications to Central Control (Indications Only)

c) The 24 fiber optic cable backbone will require modification to transition CTC away from the legacy Programmable Logic Controller (PLC). The legacy CTC connection shall remain active during construction where possible with a temporary fiber cable to maintain the legacy connection.

d) Reference the Contract Drawings to determine whether the fiber is aerial or underground at the locations shown where the 24 fiber optic cable backbone access is recommended. When new lateral cables are called for in the Plans, the lateral shall be 48 strand fiber optic cable.

3) There are areas where the existing 24 and 144 fiber optic cables are installed in underground conduit, and the backbone cables are coiled and/or spliced inside the legacy cases. These cables shall be removed and/or pulled back to free the cable from the legacy cases, reinstalled in new conduit paths, and respliced. In some areas where fiber cable pullback is not possible, the plans call for new fiber optic cable. Refer to the Fiber Pullback Plans #1, #2, & #3, and the Site-Specific Signal Location Plans to determine the work required. All fiber work plans in these areas shall require coordination with MTS to be scheduled to account for MTS communications network impacts.

b. Green Line Fiber Between Baltimore Junction and El Cajon Station

1) Existing 144 Cable Backbone (Baltimore Junction to Grossmont Station)

a) The existing 144 fiber optic cable installed between Baltimore Junction Communications Room and Grossmont Station Communications Cabinet needs to be replaced due to the following conditions:

i) This cable is installed aerially for most of the alignment and does not include sufficient slack to splice new signal locations. If splice enclosures were added to the existing cable, they could not be serviced from the ground level, which is not desired.

ii) The cable is spliced within four legacy signal cases between Baltimore Junction and Grossmont Station.

2) New 144 Cable Backbone (Baltimore Junction to Grossmont Station)

a) Contractor shall install new single mode 144 fiber optic cable per the Baltimore Junction to El Cajon Fiber Installation Plan.

b) The cutover from the existing cable to the new cable will impact existing network traffic. Existing cable includes reserved fiber for SANDAG and Caltrans. Contractor shall coordinate with MTS to determine optimum time to complete this cutover, including coordination with the third parties.

3) Existing 72 Cable Backbone (Grossmont Station to El Cajon Station)

a) The 72 fiber cable installed between Grossmont Station and E1468RC/OCS Pole 713+06 shall remain protected in place per the Baltimore Junction to El Cajon Fiber Installation Plan.

b) At certain locations indicated in the Contract Drawings, there is a requirement to splice fiber cable to remove a legacy lateral cable that will not be replaced in the new system. These lateral cables are currently dark and not active, allowing them to be removed at any time.

c) The 72 fiber cable between E1468RC/OCS Pole 713+06 railroad east to E1641RC/OCS Pole 804+81 shall be replaced with a new 72 fiber cable to reduce the splice work required to remove the legacy signal locations from the existing cable. These legacy lateral cables are currently dark and not active, allowing them to be removed at any time.

4) New 72 Cable Backbone (OCS Pole 713+06 to OCS Pole 804+81)

a) New single mode 72 fiber optic cable shall be installed from E1468RC/OCS Pole 713+06 railroad east to E1641RC/OCS Pole 804+81 per the Baltimore Junction to El Cajon Fiber Installation Plan.

5) The Green Line does not have an existing 24 fiber backhaul cable. The Contractor shall install this new single mode 24 fiber optic cable between Baltimore Junction Communications Room and E26 Interlocking per the Baltimore Junction to El Cajon Fiber Installation Plan.

a) All fiber lateral terminations to signal enclosures shall be spliced to the 24 fiber cable and shall be dedicated to signal related functions.

c. Aerial to Underground Transition

1) Along the alignment, fiber aerial to underground transition is made at an OCS pole. OCS poles do not have an internal spout. The Site Specific Layout drawings indicate the location where new GRS conduit banded to the OCS pole is required to create a protected transition path for the backbone or lateral cable.

d. Splice enclosures

1) Contract drawings indicate whether new splice enclosures are required or whether there are existing splice enclosures that can be reused.

2) All aerial splice enclosures and lateral cables shall be installed such that they can be serviced from the field side at ground level.

e. Aerial Delashing/Relashing

1) Site Specific Layout drawings provide location information for limits of aerial delashing and relashing required to access the aerial cable.

C. Related Sections:

1. Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

2. Section 34 42 01 – Transportation Signaling and Control

3. Section 34 42 19.01 - Vital Logic Controller

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI)

1. ANSI/TIA/EIA-455 – Standard Test Procedure for Fiber Optic Fibers, Cables, Transducers and Other Fiber Optic Components.

2. ANSI/ICEA S-87-640 – Standard for Optical Fiber Outside Plant Communications Cable

B. Telcordia

1. GR-20 – Optical Fiber and Optical Fiber Cable

C. Telecommunications Industry Association

1. TIA-598-C – Optical Fiber Cable Color Coding

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit cutsheets for all material proposed to be furnished by the Contractor.

C. Submit Fiber Cable Installation Plan.

1. Develop a written cable installation plan, procedure and a checkoff list for approval at least 60 calendar days prior for plan and 30 calendar days prior (for procedures) to cable installation. These documents shall be prepared based on the Contractor’s review of the communication plans and field site survey and shall include pulling and installation information for each cable pull. The documents shall include proper approach and step-by-step procedures for feeding cable into conduit, to maintain proper bend radii and to minimize friction. The plan shall include aerial lashing procedures when applicable.

D. Submit Fiber Cable Test Plan and Procedures

E. Submit Network Switch Test Plan and Procedures

F. Submit Test Results for Fiber Cable and Network Switch Testing

G. Submit Asbuilt documentation, showing any deviations from the Contract Plans.

1.04 QUALITY ASSURANCE

A. All wire and cable manufacturers shall be approved by the Engineer. The Contractor shall provide all data required for evaluation and shall make the arrangements for any required demonstrations and tests.

B. The manufacturer shall have 10 years experience providing fiber optic products to the rail and transit industry. The manufacturer shall have industry standard test procedures to validate fiber optic products meet minimum specifications during production and prior to shipment for use.

1.05 DELIVERY, STORAGE AND HANDLING

A. Closet Connector Housing Single Mode Pigtailed Splice Cassettes with SC Duplex panels will be provided by Others in a box within the Owner Furnished signal enclosure for which they are intended to be installed. Contractor shall install these cassettes.

B. Fiber optic patch cables will be provided by Others in a box within the Owner furnished signal enclosure for which they are intended to be installed. Contractor shall install these patch cables.

C. All cable reels shall be not less than twenty (20) times the finished cable nominal diameter and shall in no case be less than the minimum bending radius or as recommended by the manufacturer. The following particulars shall be stenciled or painted in a permanent manner on the outside of the flange of each reel. Wherever necessary, the whole of the outside of the flange of the reel shall be painted over to cover all marks having no reference to this Contract.

1. The manufacturer’s identification of the cable type and date of manufacture.
2. Gross weight of Reel and Cable.
3. Full description of the cable.
4. Cable identification number that is referenced to the test sheet.
5. Length of Cable.
6. An arrow showing the direction in which the reel should be rolled to gain access to the cable.

D. All ends of the cable shall be sealed to prevent the entrance of moisture.

E. Handling – Cable drums shall be complete with close fitting wooden battens to prevent damage to the cable during transit and storage.

F. Cable reels shall be stored with flanges upright, Cable on drums with batten in place shall be stored indoors.

G. Fiber optic cable shall be handled carefully and protected from damage until it is installed in place. Cable shall be delivered on spools or reels and shall be removed by unreeling and not by uncoiling or twisting over the edge of the reel. Cable with dents, flat spots, or other sheath distortions shall not be installed. Two meters of cable at both ends of the cable shall be accessible for testing. Attach permanent label on each reel showing length, cable identification number, cable size, cable type, attenuation, bandwidth and date of manufacture.

H. The Contractor shall visually inspect cables at time of delivery to the construction site to ensure that no damage was done in shipping and that the specified cable was received. Every reel shall be inspected by the Contractor for physical damage such as nails driven into reels to secure shipping blocks, lagging, or reel covering missing and cable and seals missing or damaged. The Contractor shall replace all damaged or rejected cable promptly at no cost to MTS.

I. After completing visual inspection, the Contractor shall OTDR test each fiber reel upon receipt and submit the test results to MTS.

J. Wires and cables shall be stored at the construction site on solid surfaces that shall adequately support the cable reels, but which shall be well drained and not allow accumulation of liquids, oils, or chemicals.

K. The cable reels shall be aligned and protection provided so as not to allow the reel flanges to damage other reels. Adequate aisles and barricades shall provide accessibility but prevent construction equipment from damaging the cable reels.

L. Cable ends shall be resealed promptly when a length is cut from the reel. Cable reels shall be properly handled, i.e., by using a sling and spreader attached to a shaft through the reel hubs, or by cradling both flanges between lift truck forks. The reels shall not be lifted by the top reel flange or dropped from any height. Lift truck forks shall not touch cable surfaces on the reel. Reels shall always be rolled in the direction opposite the cable wind on the reel. Reels shall not be laid flat.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Fiber Optic Cable

1. Cable shall be an all-dielectric, single mode, gel-free fiber optic cable in a loose tube buffer design, which meets or exceeds the following specifications and conforms to ANSI/ICEA-S-87-640. Cable shall be designed for direct burial, conduits, ducts and aerial (lashed) installation and rodent proof. Each fiber shall be distinguishable by means of color-coding in accordance TIA/EIA-598-A. Fiber optic materials and equipment shall be equal in quality and performance to that manufactured by Corning, Belden, or approved equal.

2. Fiber optic cable shall consist of optical fibers, strength members and jacketing. Materials used within a given cable shall be compatible with all other materials used in the same cable when such materials come into intimate contact. All cable components used shall have no adverse effect on optical transmission or on the mechanical integrity characteristics of the fiber placed in the cable. All materials used shall be non-toxic, non-corrosive and shall present no dermal hazard. Cable

shall be manufactured continuous with no factory splices in the fiber. All cable used on this project shall be from one manufacturer.

3. A dielectric strength member shall be included in the cable. The cable shall contain at least one ripcord.

4. Cable outer jacket shall be polyethylene insulated, low smoke and polyolefin. Cable jacket shall be marked with manufacturer's name, sequential meter or foot markings, date of manufacture and a telecommunication handset symbol, as required by Section 350G of the National Electrical Safety Code (NESC).

5. Optical Specifications

a.	Operational Wavelength	1,310 nm and 1,550 nm
b.	Optical Attenuation	@ 1,310 nm: 0.4 dB/km
		@ 1,550 nm: 0.3 dB/km

6. Mechanical Specifications:

a.	Crush Resistance:		10,000 nm (6.78 pounds/feet)
b.	Minimum Bending Radius:		15 times the cable outside diameter under tension and 10 times the cable outside diameter installed.
c.	Temperature:		
	1)	Operational	0 to +70 degrees Celsius
	2)	Storage	0 to +70 degrees Celsius
d.	Humidity:		0 to 100 percent
e.	Tensile Strength:		
	1)	Installation	2,700 N (600 lbf)
	2)	Static	600 N (135 lbf)

f. Optical Fibers:

1) Optical fibers shall be single-mode (SM) step index optical glass waveguides. The fiber shall have a transmission window centered at 1310 nanometer (nm) wavelength. The attenuation at 1310 nanometers shall be 0.4 dB/Km or less. Optical fiber shall be Corning Single-mode OS2.

g. Color Coding

1) Color coding of optical fibers and loose buffer tube shall conform to EIA/TIA-598, Optical Fiber Cable Color Coding.

h. Strength Members:

1) Strength members shall be integral part of the cable construction. Combined strength of the members shall be sufficient to support the

stress of installation and protect the cable in service. Strength members shall be nonmetallic.

2) Cables shall withstand an installation tensile load of not less than 600 pounds force short term and 200 pounds force long term.

i. Cable Jacketing:

1) Cable jacketing for outdoor and aerial installations shall be medium density polyethylene material. Cable jacketing shall be UV resistant.

B. Underground Warning Tape

1. Manufacturers:

a. Siemens

b. Schneider Electric

c. Cooper Industries

d. Approved equal

2. Description

a. The construction of the warning tape shall be such that it will not delaminate when it is wet.

b. It shall be resistant to insects, acid, alkaline and other corrosive elements in the soil. It shall have a minimum of 700 percent elongation before breakage.

c. The warning tape shall be 100mm wide with bold printed black letters of approximately 19mm on bright orange color background, and contain the printed warning, “Caution Fiber Optic Line Buried Below”, repeated at approximately 800mm intervals.

d. The printed warning shall be non-erasable and shall be rated to last with the tape for a minimum of 40 years.

C. Fiber Optic Patch Cords and Connectors

1. Single mode fiber optic cable patch cords shall be Single Mode Fiber, Type SC connector unless otherwise approved by the Engineer. Patch Cord Connector insertion loss shall be nominally 0.3 dB and less than 0.5 dB.

D. Communications Cabinet Related Equipment

1. The communications cabinet uses Corning fiber distribution panels (FDP). Contractor shall provide single mode SC duplex panels that are compatible with the existing FDP.

2. The communications cabinet uses Etherwan modular media converter chassis model EMC1600, media converter model EL100C-20. Contractor shall provide media converters that are compatible with the existing system.

E. Aerial Splice Enclosure and Related Equipment

1. The aerial splice enclosure shall be Corning SCF-6C2201-72 at aerial intercept locations and for the 24 fiber cable backbone. Splice tray SCF-ST-099 shall be used with this enclosure. Aerial Hanging Bracket BKT-SC-C shall be used for aerial applications. Contractor shall note that where existing 24 fiber splice enclosures are shown being modified, these splice trays can be used for bidding purposes, but the Contractor shall complete field verification of existing enclosures to ensure compatibility of use

2. The aerial splice enclosure shall be Corning SCF-6C28-01-144 the locations where the 144 fiber cable backbone is shown being replaced in the Contract Plans. Splice tray SCF-ST-077 shall be used with this enclosure. Aerial Hanging Bracket BKT-SC-C shall be used for aerial applications. Contractor shall note that where existing 144 fiber splice enclosures are shown being modified, these splice trays can be used for bidding purposes, but the Contractor shall complete field verification of existing enclosures to ensure compatibility of use.

3. Snow shoe slack storage of 120 feet will also be provided at each intercept point.

4. Lashing wire shall be 0.045 Type 302.

5. Where splice enclosures are shown as reused, Contractor shall furnish and install the additional splice trays and ancillary material to support new fusion splices as shown on the Contract Plans. Contractor shall complete field verification of existing enclosures to ensure compatibility of use.

6. Each installed fiber optic cable shall be labeled with self-laminating Panduit PST-FO or approved equal. Labels shall contain the statement “Caution: Fiber Optic Cable” with room to identify the cable type, count and adjacent location to indicate direction.

F. Serial to Fiber Converter

1. This equipment is Owner Furnished but the Contractor shall provide spares as required in Spare Parts.

2. The serial to Fiber converter is required for RS232 CTC information to be transmitted to Central Control. The serial to Fiber converter shall be a hardened device at interlocking signal enclosures. A fiber to electrical (copper) Ethernet converter should be installed in the communication cabinets. The serial device shall be the Siemens RS910 (Part Number 6GK6091-0AT21-0BA0-Z A01+B08+C00) or approved equal. The fiber connection in the signal enclosure shall be single mode using SC connectors.

G. Fiber to Ethernet Switch

1. This equipment is Owner Furnished but the Contractor shall provide spares as required in Spare Parts.

2. The fiber to Ethernet Switch is required for vital and maintenance information to be passed on segregated networks. The fiber to Ethernet switch shall be the Siemens RS900 (Part Number 6GK6090-0AS21-0BA0-Z A25+B00) or approved equal. The switch shall be a hardened device installed in signal enclosures.

H. Underground Splice Enclosure

1. The aerial splice enclosures defined in 2.01 E are acceptable for use a underground splice enclosures.

2. Contractor shall adjust pull box depth by adding extenders as necessary for new pull boxes that contain underground splice enclosures.

PART 3 – EXECUTION

3.01 INSTALLATION – GENERAL

A. Underground fiber optic cables shall be installed directly in the underground ducts.

B. After conductors have been installed, the ends of conduits terminating in pull boxes, junction boxes, controller cabinets and equipment cases shall be sealed with an approved type of sealing compound.

C. The Contractor shall:

1. Install individual conductors and multiple conductor sheathed cables in conduits, raceways, cable trays, ducts and trenches as indicated to complete the wiring systems.

2. Train cables into final position while observing minimum bending radii. Slack shall be provided at all terminals in an amount sufficient for two re-terminations.

3. Secure and neatly bundle cables inside panel boards, control cabinets and pull boxes with nylon straps.

4. Fiber Optic Cable Labels shall be applied at the following locations:

a. Within 6 inches of cable entrance to splice enclosures (aerial or underground)

b. Within pullboxes/vaults at each conduit ingress/egress point.

c. At the top of aerial spout prior to entrance.

d. At the cable chute or entrance conduit within the signal or communications enclosure.

e. Within 6 inches of entrance to Fiber Distribution Panel within signal or communications enclosure.

f. Label information shall include:

1) Fiber Optic Cable Count (SM-144, SM-72, SM-24, SM-48-L, SM-24-L making a distinction between backbone and lateral cable.

2) Indicate destination of fiber cable:

a) RR West (backbone)

b) RR East (backbone)

c) Name of signal or communications enclosure (lateral)

3.02 UNDERGROUND CABLE PULLING

A. All requirements apply to both cable and innerduct installation.

B. Cable shall be pulled in strict accordance with manufacturer's recommendations. The Contractor shall submit the manufacturer's installation recommendations to the Engineer for approval a minimum of 30 calendar days in advance of cable pulling. Before installation of cables in raceway, a suitable wire brush, swab and mandrel shall be pulled through the conduit to remove extraneous matter and to verify that the raceway system is free of obstructions. Wire rope shall not be used to pull cable in non-metallic raceways. Pulling tensions shall be kept below values recommended by manufacturers for both longitudinal tensions and side pressures.

C. The cable pull line tension shall be continuously monitored using dynamometers or load-cell instruments and shall not exceed the maximum tension specified by the cable manufacturer. The mechanical stress placed upon the cable during installation shall be such that the cable is not twisted or stretched.

D. When necessary, the Contractor shall pump out any water that may have accumulated in the pull boxes and manholes and shall provide ventilation to disperse collections of noxious gases. The Contractor shall pull the cables in the presence of the Engineer and shall notify him at least 48 hours in advance of each scheduled pull. If the Contractor observes manufacturing defects in cable being pulled, such cable shall not be pulled.

E. Pulling winches and associated equipment shall be of adequate capacity to ensure a steady continuous pull on the cable.

F. Unless ends of pull are within voice or visual range, two-way radios or portable phones shall be used to maintain contact between teams.

G. Cable feeder tubes and nozzles shall be used on all pulls to protect cables and reduce pulling tensions. Cable reels shall be setup in tandem so that cable may be fed into the raceways without changing direction of bend. Supply reels shall be turned while pulling cable to assist in reducing tension. As the cable is unspooled from the reel, it shall be inspected for jacket defects or damage. The cable shall not be kinked or crushed and the minimum bend radius of the cable shall not be exceeded during installation.

H. Cable shall not be pulled unless contaminants and moisture can be sealed out of the cable. Where pulling grips are used, damaged ends shall be removed as soon as cable has been installed. Cable ends shall be sealed with caps at conclusion of pulling. Temporary cable tags shall be attached to the cable as soon as it is pulled.

I. Whenever a cable is cut, the ends shall be sealed by caps and tape to prevent entrance of dirt and moisture before permanent connections are made. Cut ends of cable, whether on reels or in raceways, shall not be allowed to remain exposed.

J. The method may require the cable to be pulled in successive pulls. If the cable is pulled out of a junction box or pull box the cable shall be protected from dirt and moisture by laying the cable on a ground covering.

3.03 AERIAL FIBER OPTIC CABLE INSTALLATION

A. Fiber optic cable shall be carried on a galvanized steel aerial messenger support wire supported and routed on catenary poles and shown on the Contract Plans. The fiber optic cable shall be double lashed to the strand with the lasher wire.

B. All installation work shall be in accordance with CPUC General Order (GO) No. 95 and 128.

C. Select attachment points so that clearances required by GO 95 are maintained in all cases and does not interfere with the performance of the existing catenary assemblies.

D. The Contractor shall furnish and erect temporary guard structures as needed to suspend cable during pulling over adjacent railroad, highway, and wire line crossings, where added cable support is needed to safely install the cable(s). The Contractor shall remove all temporary guard structures after completion and restore the area to its preexisting condition.

E. The Contractor's installation method shall prevent sudden changes in cable pulling and string tensions.

F. The fiber optic cable reel strand shall have a braking device to prevent the cable from running free, and to ensure that uniform tension is maintained at all times during the pull. The reel stand shall control the speed and tension to ensure that the cable pulling speed and tension are maintained within the cable manufacturer's specified limits. Where the Contractor is able to access the pole line without impacting rail operations the Contractor may reel out the fiber optic cable alongside the trackway.

G. Where the method of installing the fiber optic cable is to pull through cable stringing blocks, then wire mesh pulling grips or an alternative method approved by the Engineer prior to the start of the cable installation shall be used to pull the fiber optic cable through the stringing blocks. The grip shall be a double or triple weaves design and is rated to match the cable diameter. The load rating shall match the maximum anticipated load on the cable during the cable pull in.

H. The Contractor's equipment shall maintain proper bending radius on the cable during pulling and tensioning. At all locations in which the cable bending angle is greater than 25 degrees the Contractor shall use stringing blocks with a minimum radius of 20 inches or greater.

I. A swivel shall be used to attach the pulling grip to the pulling line to minimize cable twisting during installation. The swivel shall be selected according to the groove size of the stringing block. Select swivels that will pass easily through the stringing blocks. The swivel shall be rated to separate prior to the wire mesh grip breaking.

J. During the pull, one person shall follow the swivel link and communicate by reliable mobile transmission media with the puller operator. The cable shall be monitored as it is pulled through stringing blocks by observing the cable markings or an attached flag. If continuous twist in a constant direction is observed the pull shall be immediately stopped and the stringing block readjusted.

K. Splices shall not be permitted in the aerial fiber optic cable except where shown on the Contract Plans.

L. The Contractor shall not cause excessive bending deflection of the catenary poles that may result in misalignment or sag of the other trolley overhead electrical cables.

M. Aerial storage and splice closure assemblies shall be installed at locations shown on the Contract Plans. The aerial storage and splice enclosure assemblies shall be firmly supported from the support wire. Install aerial splice closure and in span aerial storage

units to splice fiber strands and store approximately 120 feet of cable slack at every aerial splice closure or fiber optic cable storage location shown on the Contract Plans.

N. The Contractor shall place heat shrinkable end caps on cable ends that are exposed to an outdoor environment (including in a pull box) to prevent water penetration until splicing. End caps are not required if the cable end is located in an environmentally controlled communication room or equipment enclosure.

O. The Contractor shall install cable warning tags at every structure attachment location. All cable tags shall be affixed to the cable at an orientation at which they will be easily read from the ground. All cable tags shall be tightly fastened with at least 2 cable ties to the cable in such a manner that will not permit slippage or rotation in any direction. A loose dangling tag will not be accepted.

3.04 SPLICING AND TERMINATION

A. All fiber-optic cable splices shall be by fusion. Splices shall be housed in a splice enclosure and shall be encapsulated with an epoxy, ultraviolet light cured splice encapsulate, or otherwise protected against infiltration of moisture or contaminants. Fiber-optic splices shall be field tested at the time of splicing. Fusion splices shall have less than 0.2 dB loss.

B. All SM optical fibers shall be terminated to Type SC connectors. Such terminations shall be made with “pigtails,” not less than 3 feet in length, cut from factory fabricated and tested cable assemblies having connectors at both ends. The mated pair loss, without rotational optimization, shall not exceed 0.5 dB per mated pair. The pull strength between the connector and the attached fiber shall not be less than 50 pounds force.

C. Termination enclosures shall be sized to accommodate the fiber optic terminations to be made. Sizing shall include sufficient space for service loops to be provided and to accommodate a neat, workmanlike layout of equipment and the bend radii of fibers and cables terminated inside the enclosure. Termination enclosures shall be located as shown in the Contract Plans.

D. In all train control enclosures, a 50 foot slack loop shall be provided.

3.05 VERIFICATION

A. The Contractor shall verify that the installation design is correct and adequate for the cables installed. The Contractor shall ensure that conduit size, conduit fill, conduit bend radii, manhole spacing, manhole size, raceways, ducts and associated hardware are proper for the intended installation.

3.06 MECHANICAL PROTECTION

A. Where cables leave conduits, the end of the conduit shall be fitted with end bells to prevent damage to the cable.

B. The Contractor shall provide appropriate special protection for cables in areas where the cables are unavoidably exposed to hazardous conditions such vibration or sharp corners on equipment.

3.07 TESTING

A. Fiber Optic Cable:

1. Optical time domain reflectometer (OTDR) tests shall be performed using the FO test procedures of EIA 455-59. An optical time domain reflectometer test shall be performed on all fibers of the fiber optic cable on the reel prior to installation. The OTDR shall be calibrated before conducting any official tests and the Contractor shall submit proof of calibration with test results. Photographs of the traces shall be furnished to the Engineer. An OTDR test shall be performed on all fibers of the fiber optic cable while cables are on the reel before installation and after it is installed. If the OTDR test results show anomalies greater than 1 dB, the fiber optic cable segment will be rejected by the Engineer. The unsatisfactory segments of cable shall be replaced with a new segment of cable. The new segment of cable shall then be tested to demonstrate acceptability. Photographs of the traces as well as charts shall be furnished to the Engineer for each link.

2. Power attenuation test shall be performed at the light wavelength of the transmitter to be used on the circuit being tested. The flux shall be measured at the fiber optic receiver end and shall be compared to the flux injected at the transmitter end. There shall be a jumper added at each end of the circuit under test so that end connector loss shall be validated. Rotational optimization of the connectors will not be permitted. If the circuit loss exceeds the calculated circuit loss by more than 2 dB, the circuit is unsatisfactory and shall be examined to determine the problem. The Engineer shall be notified of the problem and what procedures the Contractor proposes to eliminate the problem. The Contractor shall prepare and submit a report documenting the results of the test for Engineer's approval.

3. Flux Budget/Gain Margin Test. The Contractor shall test and verify that each circuit has a gain margin which exceeds the circuit loss by at least 6 dB. The flux budget is the difference between the transmitter output power and the receiver input power required for signal discrimination when both are expressed in dBm. The flux budget shall be equal to the sum of losses (such as insertion losses, connector and splice losses and transmission losses) plus the gain margin. When a repeater or other signal regenerating device is inserted to extend the length of a fiber optic circuit, both the circuit between the transmitter and the repeater-receiver and the circuit between the repeater-transmitter and the receiver are considered independent fiber optic links for gain margin calculations. The Contractor shall submit all Flux Budget/Gain Margin results for Engineer's approval.

4. The Contractor shall prepare complete documentation of the fiber optic plant as installed. Plant documentation shall include the following information for every fiber, connection and test:

    a. Cable: manufacturer, type, length installed

    b. Fiber: fiber type and size, splice and connection data, losses

    c. Splice and termination points

    d. Connections: types (splice or mechanical), fibers connected, losses

    e. Paths: where the link path goes in every cable

5. The Contractor shall submit electronic copies of the test traces/charts in the native file format of the software. The Contractor shall also submit one copy of the

software used to create traces/charts to enable the Engineer to review the traces/charts. Additionally, the Contractor shall also submit paper copies of all traces/charts for the Engineer's records.

6. Test Equipment

a. OTDR shall conform to the following minimum requirements:

1) Operating wavelengths: 1,300 plus or minus 20 nanometers

2) Attenuation Range (one way): minimum 15dB at 1,300 nm

3) Attenuation Resolution: 0.01 dB

4) Accuracy: 0.5 dB or better

b. OTDRs shall have digital readout capability and shall have a means of providing a permanent record in the form of a strip chart and electronic files for recording on flash-memory, CDs, or DVDs.

c. Attenuation Measurement Test Set shall consist of an optical power meter and an optical power source. Attenuation measurement test set shall be in accordance with the applicable National Bureau of Standards (NBS) standards for a stable optical source. Meter may be analog or digital. Measurement test set shall conform to the following minimum requirements:

1) Operating wavelengths: 1,300 plus or minus 20 nanometers

2) Attenuation Range: at least 30 dB at 1,300 nm

3) Attenuation Resolution: 0.01 dB

4) Accuracy: shall be plus or minus 5 percent

5) The optical source shall be capable of coupling sufficient power into the fiber so that the light received at the meter is within the meter detectability limits.

d. Bandwidth Measurement Equipment shall conform to the following minimum requirements:

1) Operating wavelengths: 1,300 plus or minus 20 nanometers

2) Bandwidth range: minimum 1000 megahertz

3) Bandwidth Resolution: 1 megahertz

4) Accuracy: plus or minus 0.5 megahertz

5) Measurement Method: Swept Frequency

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made for Signal System Fiber Optic Network.

4.02 PAYMENT

A. The Contract lump sum price paid for Baltimore Junction to El Cajon Fiber Installation shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with procuring, receiving, pretesting, installing, arranging, splicing, testing, inspecting, adjusting, managing, transporting, and storing of fiber optic cable, related splice storage and slack storage materials for Fiber Optic Networks. This also includes changes, removals and additions in adjustment of existing 144 fiber and 72 fiber cable infrastructure between the limits of Baltimore Junction and El Cajon.

B. The Contract lump sum price paid for Fiber Pullback Plan (#1, #2, or #3) shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with procuring, receiving, pretesting, installing, arranging, splicing, testing, inspecting, adjusting, managing, transporting, and storing of materials for the Fiber Optic Networks. This also includes changes, pullback, reinstallation, removals and additions in adjustment of existing cable infrastructure between the limits of each Fiber Pullback Plan.

C. The Contract lump sum price paid for Station Communications Case Modifications shall include full compensation for furnishing all labor, materials, tools, equipment, and all incidentals in connection with procuring, receiving, installing, arranging, connecting, testing, inspecting, adjusting, managing, transporting, and storing of media converters, fiber optic closet connector housings, panel cards, fiber patch cords and ethernet patch cord materials for the CTC Fiber Optic Networks within each Station Communications Case and Baltimore Junction Comm Room.

D. All remaining compensation for Signal System Fiber Optic Network shall be included in the contract price paid per Signal Location Fiber Lateral Complete, therefore no separate payment will be made.

END OF SECTION

SECTION 34 42 62
SERVICE METERS

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes requirements for 120/240V, 100A, 200A, three-wire, single-phase meter service and upgrading existing meter service to 120/240V, 100A, 3-wire, single-phase meter service.

B. This Section includes transformer, disconnect and aerial cable requirements when power is provided to a remote location where a service meter is not possible.

C. Provide all interface with, and in conformance to the standards of the Local Power Company (LPC), to obtain the commercial metered power service at the locations shown on the Contract Plans and as required by the Engineer. Herein, the Local Power Company shall be San Diego Gas and Electric (SDG&E).

D. Related Specification Sections include but are not necessarily limited to:

1. Section 34 42 13.19 —Signal Systems Grounding

1.02 REFERENCES

A. National Fire Protection Association (NFPA):

1. 70 – National Electric Code (NEC)

B. National Electrical Manufacturers Association (NEMA):

1. NEMA ST 20 – Dry Type Transformers for General Applications

C. American Bureau of Shipping (ABS)

1. Type Approval Certification for Marine Duty Service and Offshore Applications

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit Meter Service Plans, indicating mounting pole, meter base, breaker box, and grounding.

C. Submit peak load calculation for each service meter location. Submit load calculation based on Owner Furnished Signal Instrument Enclosure panels and any required field modifications as shown in the Plans.

1. Remotely powered locations

a. Submit transformer product data include KVA rating, temperature rise, detailed enclosure dimensions, Primary and Secondary nominal voltages, primary voltage taps, no load and full load losses per NEMA ST 20, impedances, and unit weight.

1.04 QUALITY ASSURANCE

A. Electrical service shall conform to the provisions in NFPA 70 National Electrical Code and these Specifications.

B. Materials and equipment furnished and installed under this Section shall conform to all applicable State and local ordinances pertaining to electrical power installations, and the National Electrical Code (NEC).

1.05 WARRANTY

A. Transformers shall carry a 10 year warranty.

PART 2 – PRODUCTS

2.01 SERVICE METER MATERIALS

A. Circuit breakers shall be sized by the Contractor for the projected loads.

B. Ground Rods and Ground Rod Clamps: Ground rods and ground rod clamps shall meet the requirements of Section 34 42 13.19 —Signal Systems Grounding.

C. Wood Poles shall meet the requirements of LPC.

D. Meter Pedestals and Bases shall provide and install meter pedestals and bases which meet the requirements of LPC.

2.02 SINGLE PHASE TRANSFORMERS

A. All single-phase transformers shall be dry-type encapsulated, HPS Titan by Hammond Power Solutions or approved equal. The primary side of each transformer shall, if applicable, be provided with taps that meet or exceed NEMA standards.

B. Transformer Requirements

1. Primary Voltage: Single Phase 240x480 Volts
2. Secondary Voltage: Single Phase 120/240 Volts
3. kVA Rating: 15 kVA
4. System Frequency 60 Hertz
    a. Standard Impedance: 1% to 3%
5. Winding Taps: NEMA ST 20
6. Insulation class: 180 degrees C
7. Common core construction, high grade non-aging fully processed silicon steel laminations, convection air cooled.
8. Coil conductors: copper windings, with terminations brazed, welded or bolted
9. Enclosure : ventilated, NEMA 3R stainless steel
10. Sound level shall meet NEMA ST 20, maximum sound level of 45dB
11. Type ABS approval for Marine Duty Service and Offshore Applications

12. Suitable for wall mount or mount to Unistrut outdoors.

2.03 SAFETY DISCONNECT SWITCH

A. Safety Disconnect Switch Requirements

1. Protection method; fusible
2. Voltage rating 600V AC/DC
3. Current Rating, as specified on the Plans
4. NEMA 4X enclosure rating
5. Housing material, 316 stainless steel
6. Number of poles, 3
7. Number of wires, 3

PART 3 – EXECUTION

3.01 GENERAL

A. Make the necessary arrangements with LPC to have the new meter service hooked up at least one month prior to placing signal system in service.

B. Arrange to obtain service connection from LPC.

C. Where the Contract Documents specify that the Owner will coordinate with the LPC, Contractor shall be responsible for the installation and coordination with the LPC.

3.02 COORDINATION

A. Coordinate the connection and interface of new cables and equipment with LPC in accordance with its standards.

3.03 INSTALLATION

A. The installation of the various equipment and materials for the signal power distribution system that are specified herein shall be in accordance with LPC's requirements and the NEC.

B. The requirements included within this Section shall cover all incidental installation work necessary to affect an integrated, tested, and operable signal power system for the Work as shown on the Contract Plans.

C. Arrange utility power service at all equipment shelter locations requiring such services. Connections to equipment shelters from meter may be by underground or aerial connection. Where aerial connection is used, maximum aerial length between meter and shelter shall not exceed 125 feet without the Engineer's prior acceptance, unless shown as aerial on the Contract Plans.

D. The Contractor, in cooperation with the Engineer, shall meet as necessary with LPC representatives to negotiate for the upgrade, relocation, or addition of required power services needed to complete system operation.

E. Transformer

1. Install transformer in accordance with the manufacturer's recommended installation procedures and comply with all applicable codes.

2. Transformer installation shall be plumb and level.

3. Verify secondary voltages and adjust secondary taps as necessary.

3.04 GROUNDING

A. Meter service grounding shall be in accordance with Section 34 42 13.19, Signal System Grounding, the NEC, and the LPC's requirements. If there is a conflict between the above specifications, LPC's requirements shall govern.

3.05 TESTING AND INSPECTION

A. Simulated load tests, in accordance with approved signal power system test procedure, shall be satisfactorily completed prior to final connection of signal facilities at each equipment location.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measure will be made to the Contractor for Work of this Section.

4.02 PAYMENT

A. Full compensation for labor, materials, equipment and fees to furnish, install, test and commission each Service Meter at each applicable Signal Location shall be included in the lump sum contract price paid for that location's Signal Location Complete.

B. Aerial power cable that provides power at a remote location shall be included in the lump sum contract price paid for the service meter location's Signal Location Complete.

C. Transformer and disconnect switch equipment shall be included in the lump sum contract price paid with the Signal Location Complete that is closest to the equipment installation.

END OF SECTION

SECTION 34 71 50

HIGHWAY-RAIL GRADE CROSSINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removing and reconstructing existing highway-rail grade crossings.
2. Removing and reconstructing existing pedestrian-rail grade crossings.

B. Related Specification Sections include but are not necessarily limited to:

1. Section 01 00 00 – General Requirements
2. Section 32 12 00 – Hot Mix Asphalt (HMA) Pavement
3. Section 34 11 13 – Track Rails
4. Section 34 11 16.19 – Thermite Welded Track Rails
5. Section 34 11 26.13 – Track Rail Ballast
6. Section 34 11 33.16 – Timber Track Cross Ties
7. Section 34 11 40 – Precast Concrete Grade Crossing Panels
8. Section 34 11 93 – Track Appurtenances and Accessories
9. Section 34 72 13 – Railway Line Construction
10. Section 34 72 13.10 – Special Trackwork Construction
11. Section 34 72 13.12 – Track Shifting and Resurfacing

1.02 REFERENCES

A. ASTM International (ASTM)

1. D3776 Standard Test Methods for Mass per Unit Area (Weight) of Fabric.
2. D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
3. D4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

B. SSPWC: Latest Edition, Standard Specifications for Public Works Construction, “Greenbook”, Public Works Standards, Inc.

C. California Public Utilities Commission (CPUC): General Order(s) for road crossing(s) being newly constructed, removed or reset under the Project.

D. State of California Department of Transportation: California Manual on Uniform Traffic Control Devices (CA MUTCD), Latest Edition.

E. WATCH: Work Area Traffic Control Handbook, Latest Edition, WATCH BOOK, APWA Southern California Chapter.

F. Federal Railroad Administration (FRA): 49 CFR Part 213, Track Safety Standards.

G. Americans with Disabilities Act (ADA).

1.03 SUBMITTALS

A. General

1. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

B. Plans and Procedures:

1. Work Plan in accordance with the requirements in Section 01 00 00, General Requirements.

C. Certificates

1. Material Test Reports for products purchased and used in the Project.

D. Product Data and Shop Drawings

1. Product technical data including:
   a. Acknowledgement that products submitted meet requirements of standards referenced.
   b. Manufacturer's installation instructions.
   c. Shop Drawings detailing dimensions, reinforcement and lifting apparatus for precast crossing panels.
      1) Precast concrete panels in accordance with Section 34 11 40 Precast Concrete Grade Crossing Panels.
      2) Structural calculations.
      3) Manufacturing and curing procedures.

E. Miscellaneous Submittals

1. Submit quality control test results for testing performed for precast concrete panels and other material. Testing shall be performed by a certified test laboratory hired by the Contactor or fabricator and approved by the Engineer.

2. Verification documentation that Contractor requested DigAlert field location of underground utilities and MTS clearance of underground railroad utilities prior to starting any excavation work in accordance with Article 3.6, Existence of Utilities at the Work Site, of the General Conditions.

3. Contractor must submit qualifications and experience of installers of precast concrete grade crossings.

1.04 QUALITY ASSURANCE

A. The Engineer will review test reports in accordance with the Specifications as applicable for the material item and may require additional testing to confirm requirements with the Specifications.

1.05 PROJECT SITE CONDITIONS

A. Prior to commencing Work, Contractor must examine the Contract Documents, inspect the site, obtain, and review available Record Drawings of existing work and utilities and note conditions and limitations which may influence work required by this Section in accordance with the requirements of the General Conditions.

B. Contractor must execute Work under this Specification in such a manner as to minimize impact to the daily operation of the railroad, vehicular and pedestrian traffic in accordance with Article 3.16, Traffic Control, of the General Conditions and the approved Traffic Control Plans.

C. Contractor must maintain vehicular traffic and pedestrian walkways using barricades, warning signs and warning lights in accordance with the General Conditions requirements.

1. Warning lights shall be set so they do not shine into the eyes of Trolley operators in on-coming trains.

2. Temporary pedestrian walkways shall meet ADA standards.

1.06 ENVIRONMENTAL CONDITIONS

A. The Contractor must protect against erosion and uncontrolled run-off within and adjacent to right-of-way in accordance with the Project's Storm Water Pollution Prevention Plan (SWPPP) and the approved NPDES Permit in accordance with Article 3.21, Compliance with General Construction Permit for Construction

Activity Schedule, of the General Conditions.

B. The Contractor must obtain all required permits for dewatering and legally dispose of water from dewatering operations in accordance with Article 3.21, Compliance with General Construction Permit for Construction Activity Schedule, of the General Conditions.

C. Contractor must provide for site cleanliness, sweeping and dust control in accordance with the General Conditions requirements.

D. Contractor must provide noise abatement as required by environmental permits or local agency requirements and in accordance with Article 3.24, Excessive Noise, of the General Conditions.

1.07 REGULATORY REQUIREMENTS

A. Furnish any required excavation drawings or traffic control plans to Engineer for review and approval by MTS and jurisdictional authorities.

1. Contractor to obtain permits for performing such work as required in accordance with the General Conditions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Precast Concrete highway-rail grade crossing Panels shall be new and conform to Section 34 11 40 Precast Concrete Grade Crossing Panels.

B. Wood Ties: Ties shall be new 10 feet long and conform to Section 34 11 33.16 Timber Track Cross Ties.

C. Ballast: Ballast shall be new and conform to Section 34 11 26.13 Track Rail Ballast.

D. Rail: Rail size shall be 115# CWR and shall conform to Section 34 72 13 Track Rails.

E. Rail Fastening: Rail fastenings shall be new and shall conform to Section 34 72 13 Railway Line Construction.

F. Geotextile

1. Geotextile filter fabric used for grade crossings shall be nonwoven fabric. The filaments shall be polypropylene, polyester, or polyethylene. The filaments must be dimensionally stable (i.e., filaments must maintain their relative position with respect to each other) and resistant to delaminating. The filaments must be free from any chemical treatment or coating that might significantly reduce porosity and permeability. Nonwoven fabric may be needle-punched, heat-bonded, resin-bonded, or combinations

thereof.

2. The physical properties for Geotextile shall conform to the following:

Test Method	Property	Requirement
ASTM D3776	Minimum Weight (oz./sq. yd.)	3.5
ASTM D4632	Minimum Wet Grab Tensile Strength (lbs.)	100
ASTM D4632	Minimum Grab Elongation at Break (%)	20
ASTM D4751	Apparent Opening Size(US Sieve)	30

G. Asphalt Concrete

1. Asphalt concrete for roadway shall conform to Section 32 12 00, Hot Mix Asphalt Pavement. Asphalt concrete for roadway approach paving shall conform to Section 32 12 00, Hot-Mix Asphalt Pavement and the Greenbook Section 203 – Bituminous Materials or MTS requirements as specified in the Plans.

   a. Contractor must submit the proposed pavement design to the Engineer for review and acceptance. Roadway approach paving will be reviewed and accepted by MTS and the local agency governing the crossing.

H. Cast-in-Place Concrete

1. Cast-in-Place concrete for new or replacement sidewalks, curbs, gutters, and other concrete items shall conform to Section 32 16 00 Curbs, Gutters and Sidewalks or as shown in the Plans.
   a. Minimum 28-day compressive strength shall be 3250 psi (560-C- 3250 –SSPWC) unless otherwise shown in the Plans.
2. Cast-in-Place concrete for new or replacement Station Pedestrian Crossings is required between the field side of precast concrete panels and station platform.
   a. Minimum 28-day compressive strength shall be 4000 psi unless otherwise shown in the Plans.
3. Cast-in-Place concrete for new or replacement Station Pedestrian Crossings is required between precast concrete panels and adjacent tracks.
   a. Minimum 28-day compressive strength shall be 4000 psi unless otherwise shown in the Plans.

I. Perforated Drain Pipe

1. NOT USED:

J. Signal Conduit

1. Signal conduits shall be Schedule 40 PVC electrical conduit in accordance with Section 34 42 13.21 Miscellaneous Signal System Products.

PART 3 - EXECUTION

3.01 GENERAL

A. Coordinate all Work with MTS Signal Department forces.

B. Demolish and dispose of existing grade crossing material including asphalt concrete pavement, sidewalks, curbs and gutters and other items as required in the Plans in accordance with Section 31 11 50 Demolition, Cutting and Patching.

C. Remove and salvage existing grade crossing panels or other crossing appliances as required in the Plans in accordance with Section 31 11 50 Demolition, Cutting and Patching.

D. Track subgrade, and ballast shall be constructed to extend at each end, beyond the limits shown for each grade crossing in accordance with LOSSAN Engineering Standards or as shown in the Plans, whichever is greater.

3.02 SUBGRADE AND SITE PREPARATION

A. Prepare subgrade in accordance with the Contract Documents, Section 34 11 27 Sub-Ballast and Aggregate Base and LOSSAN Engineering Standards.

B. Remove existing concrete foundations, curbs, sidewalks, storm drains, pavement and traffic striping as shown in the plans in conformance with Section 31 11 50 Demolition, Cutting and Patching.

C. Cut lines for asphalt and concrete shall be straight and neat in accordance with Section 31 11 50 Demolition, Cutting and Patching and any damage to facilities to remain shall be repaired to the approval of the Engineer at no additional cost to MTS.

3.03 DRAINAGE AND SUBDRAINAGE

A. NOT USED:

3.04 HOT MIX ASPHALT (HMA) CROSSING END RAMPS

A. Hot Mix Asphalt (HMA) pavement end ramps shall be provided at all concrete grade crossing panel installations in accordance with LOSSAN Engineering Standards if the preapproved crossing panel is used. End ramps shall be per the manufacturer’s recommendation if a substitute is approved but shall not be less

than 3 feet in length.

3.05 SIDEWALKS, CURBS, GUTTERS, AND OTHER ROADWAY ITEMS

A. Place new sidewalks, curbs, gutters, and other roadway items as shown in the plans, the identified standards of the public agency identified in the Plans responsible for the roadway and LOSSAN Engineering Standards.

B. Highway-Railroad Grade Crossing Crossbuck signs, when called for, shall be installed in accordance with LOSSAN Standard Drawing.

C. Private, Pedestrian and Bicycle Railroad Grade Crossing Sign, when called for, shall be installed in accordance with LOSSAN Engineering Standards.

D. Temporary construction crossing signs, when called for, shall be installed in accordance with LOSSAN Engineering Standards.

3.06 PRECAST CONCRETE HIGHWAY-RAIL GRADE CROSSING PANELS

A. Install precast concrete grade crossing panels to the position and location shown in the Plans in accordance with manufacturer's recommendations, the approved procedures and LOSSAN Engineering Standards.

1. Contractor must use LOSSAN Engineering Standards when using the preapproved crossing plank.

B. Contractor must clean dirt and debris from the flangeways before releasing the crossing for the passage of trains.

C. Re-used highway-rail grade crossing panels, when shown in the Plans, shall have hot mix asphalt (HMA) placed with proper compaction in the flangeway if a rubber filler does not exist in the flangeway.

3.07 BALLAST

A. Place and spread ballast in accordance with the details indicated on the Contract Plans, LOSSAN Engineering Standards and Section 34 72 13 Railway Line Construction.

3.08 TIES

A. Grade crossing ties shall be spaced per crossing plank manufacturer's recommendations if not the pre-approved crossing plank and spacing per LOSSAN Engineering Standards ESD-4201 if using the pre-approved crossing plank. Other tie location and layout distances shall be per the LOSSAN Engineering Standards.

B. Tops of all ties within the crossing limits shall lie in the same plane. Any tie with an irregular surface dimension shall be adzed or replaced.

3.09 HIGHWAY-RAIL GRADE CROSSING TRACK CONSTRUCTION

A. Construction and fastening of track through grade crossings shall be performed in accordance with details shown on the Contract Plans, LOSSAN Engineering Standards and Section 34 72 13 Railway Line Construction.

B. Rail joints or thermite welds are not permitted within the limits of the grade crossing trackwork unless approved by the Engineer.

C. Rail joints consisting of field welds are permitted at the ends of rail strings placed for crossings. Welds shall conform to Section 34 11 16.19 Thermite Welded Track Rails.

D. Contractor must use a dynamic stabilizer after initial tamping and surfacing followed by a second surfacing pass in accordance with Section 34 72 13 Railway Line Construction , prior to the final installation of the grade crossing panels.

E. Every attempt needs to be made to close the roadway for the crossing construction so that the entire crossing can be completed continuously. If the roadway cannot be closed, extra efforts shall be utilized to ensure track surface profile is maintained during and after construction, including but not limited to an extra dynamic stabilizer pass.

3.10 FIELD QUALITY CONTROL/QUALITY ASSURANCE

A. Compaction testing for subgrade, trench backfill, and sub-ballast shall conform to Section 34 11 27 Sub-Ballast and Aggregate Base.

B. Contractor must coordinate with and provide 24 hours advance notice of crossing work to MTS Signal Inspectors and verify that testing of all crossing signal work has been completed and accepted by MTS prior to opening crossing to vehicular traffic.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Highway-rail or pedestrian-rail grade crossings will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Highway-rail or pedestrian-rail grade crossings furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

B. This price shall be full compensation for furnishing all labor, materials, tools, equipment, fees, supplies, supervision, and incidentals within the limits of highway-rail or pedestrian-rail grade crossing work in accordance with LOSSAN Engineering Standards necessary for any highway-rail or pedestrian-rail grade crossings described by the Contract Documents.

END OF SECTION

SECTION 34 72 10
RAILTRACK REMOVAL

PART 1 – GENERAL

1.01 SUMMARY

A. This Section consists of furnishing all labor, materials, and equipment necessary and incidental to the demolition, removal, and disposal of the existing trackwork materials, including 115RE rail, special trackwork, timber and/or concrete crossties, ballast, and any contaminated subgrade material.

B. All existing underground facilities within the limits of the Project site are to be located and protected in-place. The Contractor shall be responsible for replacement of any damaged facilities.

C. No stockpiling of said materials shall occur on MTS property or within the public right-of-way without the expressed approval of the Engineer.

D. All trackwork material removed and approved to be disposed of by the Engineer shall become the property of the Contractor, unless stated otherwise, and shall be disposed of in accordance with Section 14-10, “Solid Waste Disposal and Recycling,” of the Caltrans Standard Specifications and with all applicable laws and regulations.

E. Existing preservative-treated timber crossties that are removed during trackwork demolition shall be disposed of in a safe manner in accordance with the relevant Health and Safety Codes of Practice.

F. Prior to cutting any existing continuous welded rail (CWR) at any point, install rail anchors beyond the ends of rails to be cut to anchor CWR when the rails are cut. Maintain rail bonding at all times or use jumpers to maintain track circuits.

G. If applicable, track circuits shall be arranged such that signals show red when rails are removed. Switch points on crossovers shall be spiked, clamped and protected so that out-of-service track cannot be used.

1.02 REFERENCES

A. Caltrans Standard Specifications, Current Edition

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06, Submittal Procedures, of Section 01 00 00, General Requirements.

1. Track removal plan:

a. Rail anchoring limits.

b. Rail Bonding limits.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 REMOVE EXISTING TRACKWORK MATERIAL

A. Existing 115 RE Rail, and 115 RE Special Trackwork materials shall be removed and disposed of by the Contractor, unless stated otherwise.

B. Existing tracks, timber or concrete crossties, crosstie plates and spikes, joint bars, and other trackwork materials shown on the Plans to be removed shall be removed and disposed of by the Contractor.

3.02 REMOVE EXISTING BALLAST AND SUBGRADE MATERIAL

A. Existing ballast shall be removed, and subgrade material shall be removed or leveled as necessary, to maintain a minimum 6” ballast thickness below tie (9” preferred) to upper surface of subgrade. The method of removal shall not disturb the compaction of the underlying materials. Ballast pockets and soft or saturated material shall be excavated and replaced with compacted competent material as directed by the Engineer. The removal of the ballast shall be done by hand or by using mechanical methods, where necessary, as specified by the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Remove Existing Track shall be measured for payment by the track foot.

4.02 PAYMENT

A. The contract price paid per track foot for Remove Existing Track shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the removal of existing track, ballast, and grading, as directed in these Technical Specifications and as directed by the Engineer.

B. Full compensation for rail track removal shall be considered as included in the contract price paid for various other items within “Civil and Track” on the Bid Price Form therefore no separate payment will be made.

END OF SECTION

SECTION 34 72 13
RAILWAY LINE CONSTRUCTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section consists of furnishing all labor, Materials, equipment, tools, and incidentals necessary to remove, repair, modify, rehabilitate, or construct trackwork in accordance with the Contract Documents. Work includes, but is not limited to, ballast, ties, rail, fastening systems, other track material (OTM), and other special trackwork.

B. Per the contract documents, the Owner is providing a portion of the track materials deemed long lead. These materials are covered in Spec Section 01 00 00 General Requirements, 2.01 Owner Furnished Special Trackwork. Spec language pertaining to fabrication, manufacture and shipping/delivery of these items remains in the individual sections and shall be treated as information only.

1.02 1.02 REFERENCES

A. AREMA: Manual for Railway Engineering, American Railway Engineering and Maintenance of Way Association, Portfolio of Trackwork Plans, and Communications and Signals Manual

B. FRA: 49 CFR Part 213, Track Safety Standards, most current and addenda, Federal Railroad Administration

C. CPUC: California Public Utilities Commission, applicable General Orders.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Submit the following.

1. Individual certifications that all materials furnished by the Contractor conform to the specified requirements.
2. Shop drawing and product data for the Engineers approval for trackwork items furnished by the contractor. All shop drawings shall be submitted in hard copy and PDF format, prior to fabrication. Acceptance of shop drawing does not relieve manufacturer of requirements for functionality or defects or other failures to meet the Contract requirements.
3. A list of all track tools and equipment to be employed for installation of rail including rail-cutting, rail-heating devices, and destressing. Track surfacing and alignment equipment shall be laser guided, with a sixteen tamping tool design and be capable of surfacing track switches. Refer to Section 01 00 00 for additional requirements.
4. Procedure for transporting, stockpiling, and handling of trackwork materials.

5. Proposed construction and installation procedure for new trackwork as part of the construction area work plan required per Section 01 00 00. Contractor may modify the installation procedure stated hereinafter to produce the most efficient method for track construction subject to approval by the Engineer. The plan shall define the Contractor's work sequence, schedule of night work and working hours, methods and procedures to accomplish the required work and shall:
    a. Designate the line and profile rails to be used.
    b. Specify night work and working hours taking into consideration single line LRT running, the City Traffic Engineer’s requirements, environmental considerations, and local business and residential access requirements, and scheduled freight movements.
    c. Include and utilize the “San Diego Trolley, Inc. Procedures for the installation, adjustment, maintenance and inspection of CWR as required by 49 CFR 213.118”.
    d. Establish a ballast tamping procedure.
    e. Establish welding procedures, qualification test result reporting, and welding crew qualification test result reporting. Welding crew shall be certified by the manufacturer and engineer.
    f. Establish a method for production welding test result reporting.
    g. Establish procedures for unloading, stockpiling, distributing and handling ties.
    h. Include a method for reporting temperature records for CWR track anchoring.
    i. Provide an installation procedure for all special trackwork and removal of existing.
    j. Provide a method for handling all ballast.
    k. Assembly and installation track drains and signal track connection boxes.
    l. Installing rail clips and attaching rail to the specified horizontal and vertical alignment within tolerances.
    m. Provide an installation schedule defining the sequence of operations by which the Work will be performed and the anticipated duration of each operation. Describe each installation operation in detail, indicating the Materials, manpower and mechanical equipment needed.
6. Record of As-built compilation of actual track geometry produced in construction including curvature, length of reversing tangent, length of spirals, top-of-rail profile, and superelevation values.
7. Record of rail temperature record taken during anchorage and de-stressing procedures as described in the articles entitled “Procedures for Placement of CWR” and “Anchoring CWR” herein.
8. Test results for insulated joints.
9. Quality Control/Quality Assurance Program.
10. Rail end hardening procedure.

11. Procedure and field welding material technical data for field welding rail.
12. Rail destressing procedure
13. Installation of insulated joints procedure
14. Plan for the coordinating and scheduling of a signal track support crew to protect and maintain the operating signal system if required.

1.04 QUALITY CONTROL

A. Perform track construction under the supervision of qualified personnel as defined in the 01 00 00 General Requirements, experienced in railroad track construction acceptable to MTS.

B. Develop a quality program to ensure that the work is performed in accordance with the Contract Documents and within the tolerances provided herein. The program shall be submitted to MTS for review and approval prior to start of any or related trackwork activities.

1.05 TRACK TESTING

A. Quality Assurance

1. Tracks shall be subjected to frequent inspection, measurement, and operational tests by the Engineer using both localized testing and inspection during the construction and by means of operating test trains, geometry cars, rail flaw detection cars, engines, and other equipment as required over the entire track structure after completion of Installation, but prior to final acceptance of the work.

B. Corrections by Contractor

1. During the Installation and testing period, all Contractor personnel, equipment, and materials necessary to make required corrections to the track shall be available for replacements, re-ballasting, resurfacing, and realigning, or repair of constructed or modified items, as the Engineer may direct to insure proper completion of the work in accordance with the Contract Documents.

PART 2 - PRODUCTS

2.01 CONSTRUCTION EQUIPMENT

A. All machinery and all machine operators shall comply with applicable sections of 49 CFR 214, Railroad Workplace Safety.

B. All construction loads borne by equipment shall be applied between gage lines of running rails on each track unless approved by MTS.

2.02 TRACK TOOLS

A. Furnish tools and equipment necessary to construct the track.

B. Track gages, track levels, and other tools shall conform to the AREMA "Specifications and Plans for Tools."

C. Tools and equipment shall be maintained in such a condition as not to endanger employees nor damage the work and shall be subject to inspection by the Engineer.

D. Tools not conforming to the standard shall be "dressed" to AREMA recommendations or shall be replaced. Substitution of tools other than AREMA standard shall be permitted only with approval of the Engineer.

E. Track levels and gages shall be checked for accuracy at the start of every work shift and at any time the tool is dropped, struck, or damaged. Adjustments shall be performed anytime it is found to have more than 0.050 inches deviation from the nominal measurement value.

2.03 SUB-BALLAST

A. Per Section 34 11 27, “Sub-ballast and Aggregate Base,” if required.

2.04 BALLAST

A. Ballast, where required by Contract Documents, shall conform to the requirements of Section 34 11 26.13, “Track Rail Ballast.”

2.05 TIES

A. Wood ties shall conform to the requirements of Section 34 11 33.16, “Timber Track Cross Ties.” Cross ties and grade crossing ties shall be of the lengths detailed on the Plans. All ties are to be new unless indicated otherwise in the Contract Documents.

2.06 RAIL

A. Rail shall conform to the requirements of Section 34 11 13, “Track Rails.” Unless otherwise shown on the Plans, all rail is to be new 115 RE Continuous Welded Rail (CWR) standard rail conforming to AREMA Volume 1, Chapter 4, Section 2.1, Specifications for Steel Rails. For tangents and curves up to 2-degree, use new standard rail, per AREMA specifications. For curves over 2-degree, and all turnouts, use new head hardened rail per AREMA specifications.

2.07 OTHER TRACK MATERIAL (OTM)

All OTM shall be new and conform the contract drawings, and these technical specifications.

A. Bolts, nuts, and washers shall conform to AREMA Volume 1, Chapter 4, Section 2.9, Specifications for Heat-Treated Carbon-Steel Track Bolts and Carbon-Steel Nuts.

B. Joint bars shall be 6-hole, 36-inches in length, and conform to AREMA Volume 1, Chapter 4, Section 2.8, “Specifications for Quenched Carbon-Steel Joint Bars and Forged Compromise Joint Bars”.

C. All joint bars used to temporarily connect rails that will be field welded in the final configuration shall be bolted with the rail ends drilled in the outer four holes only.

2.08 CROSSOVERS

A. See Section 34 72 13.10 “Special Trackwork Construction.”

2.09 LUBRICANTS

A. Lubricant for special trackwork shall be Whitmore’s Railmaster Curve grease except that Dixon L-5550 graphite shall be used for switch plate lubricant. MTS approved equals may be substituted and shall not be applied in a manner that results in excessive build up.

B. Graphite shall not be applied to switch plates on MTS supplied Special Trackwork using EkoSlide switch point roller system.

2.010 INSULATED JOINTS

A. Insulated joints shall be installed by the Contractor in conformance with Section 34 11 19, “Track Rail Joints.”

B. All rail clips to be used with insulated joints shall be coated modified e-clips with machined edge.

2.011 GEOTEXTILE

A. Geotextile shall be furnished and installed by the Contractor in conformance with Section 34 11 93, “Track Appurtenances and Accessories”.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. All work shall be completed in accordance with AREMA Manual for Railway Engineering and as specified herein. Each fully completed work segment of track, as approved in the Construction Area Work Plan, that is to be placed into operational service shall fully comply with 49 CFR 213, have ballast section full within 1 inch from the top of ties, have joints fully bolted or welded, have all anchors, rail fully de-stressed, and the track surfaced, regulated, and stabilized.

3.02 SUB-BALLAST

A. Sub-ballast construction shall conform to Section 34 11 27, “Sub-ballast and Aggregate Base” if required.

3.03 CROSS TIES

A. Wood ties shall be used in all special trackwork as shown on the Plans.

B. Ties shall be lifted and supported during storage, transportation, and placing in such a manner as to prevent damage. Ties shall not be dropped to the roadbed. Ties shall be handled in accordance with AREMA Manual Volume 1, Chapter 30, and Section 3.5.

C. Ties damaged as a result of improper handling or installation by Contractor and rejected by the Engineer shall be removed and replaced with new ties at no additional cost to MTS.

D. Space wood crossties as shown on the Contract Drawings and the manufacturer shop drawings. Care shall be taken to ensure that the proper rail cant is established where applicable. Care shall be taken to ensure that all crossties are uniformly supported on the roadbed and that no center-binding conditions develop prior to ballasting and tamping. A minimum layer of 3 inches of ballast should be placed on top of the geotextile fabric, leveled and compacted before placement of crossties. Crossties shall be installed at right angles to the centerline of track at the designed spacing prior to rail installation.

3.04 TIE PLATES

A. Plates shall be positioned so that the rail will cant to the rail gage side and shall be centered on each tie and applied as to obtain full proper bearing of rail.

B. Tie plates shall be attached to the crossties with 4 screw spikes. Spikes shall be so placed that there will not be less than 2 inches from the center of spike to the edge of the crosstie. Spikes shall be started vertically, square, and set to full bearing on the base. Installation of screw spikes and specified resilient fasteners shall be in accordance with manufacturer’s recommendations.

3.05 RAIL FASTENING

A. OTM shall be installed in accordance with these technical specifications and manufacturer’s recommendations.

B. Installation resilient fasteners shall be in accordance with manufacturer's recommendations.

C. All rail clips used within embedded track or crossing areas shall be galvanized.

3.06 INSTALLING TRACK

A. Installation, laying, raising, lining, tamping, dressing of track over ballast, and stabilization shall be performed as follows.

1. The Contractor shall maintain rail bonding at all times to preserve negative return track circuits.
2. The Contractor shall be responsible for disconnecting and reconnecting all track joint bonds and cables within the proposed area of work as needed to install the new improvements. If existing track joint bonds and cables are disturbed, damaged, or destroyed as a result of the Contractor’s operations, they shall be repaired or replaced by the Contractor.
3. After repair or replacement of track joint bonds and cables is complete, the Contractor shall demonstrate to the Engineer that the repaired or replaced facilities operate properly.

4. After removal of the existing ballast and grading as required to meet the line and grade as shown on the Plans, the contractor shall proof roll existing subgrade to 95% relative compaction. Ballast pockets and soft or saturated material shall be excavated and replaced with competent material compacted to 95% relative compaction as directed by the Engineer. The Contractor shall submit a detailed plan for the compaction process to the Engineer for approval.

5. Geotextile fabric shall be placed in accordance with AREMA Chapter 1, Section 10, Part 1.5, “Construction Details and Methods.” Specifically, geotextile fabric shall be placed with an overlap of 2 feet in both the longitudinal and transverse directions.

6. Ballast spreading and compacting shall conform to Section 25-1.03D, "Spreading,” and Section 25-1.03E, "Compacting,” of the Caltrans Standard Specifications. An initial layer of ballast shall be uniformly distributed over the geotextile fabric and compacted before crosstie distribution, except that ballast shall not be distributed on the roadbed until the subgrade has been accepted by the Engineer. The initial layer of ballast shall be limited to a total compacted depth that will establish the track surface at least four inches below final.

7. Compaction of base ballast shall be by means of vibratory compaction equipment specifically manufactured for compaction purposes as much as possible. The self-propelled, pneumatic-tired roller shall have a gross weight of 10 to 15 tons. The vibratory compactor shall have a weight of not less than 10 tons and shall be capable of applying a dynamic load of not less than 18,000 pounds at 1300 to 1500 cycles per minute. The proposed compaction equipment is subject to approval by the Engineer.

8. The Engineer will verify the compacted ballast prior to the installation of track and appurtenant work over the ballast. Each lift of ballast within the base layer shall be uniformly spread and compacted with not less than four passes of either a self-propelled, pneumatic-tired roller, or vibratory compactor. Ballast surface that exhibits ruts, crowns, or pumping is not acceptable and must be re-graded and re-compacted prior to the placement of the crossties.

9. The track shall be assembled on the compacted base ballast to permit placement of additional ballast for subsequent raising and tamping and to provide the full depth under the ties.

10. The ballast shall be compacted with a 16-tool vibrating, squeeze-type mechanical tamper making a minimum of one full tamping insertion per tie for each inch of raise. No track raise shall exceed 4-inches. The final track raise shall not exceed 1-inch. All 16 tamping tools must be in good repair with at least 70% of the original surface area of the tamping pad available for each surfacing pass or the tool(s) must be replaced. The ballast in the crib areas shall be compacted in accordance with Article 3.1. The track shall be raised, aligned, tamped, and regulated to within the specified tolerances.

11. Ballast shall be thoroughly tamped within a space from 15-inches inside either rail to the ends of the ties. In tamping ties within the above-described limits, simultaneous tamping must be performed under each rail. Tamping is not permitted at the center of the tie except within limits of turnouts and crossings where the center of the ties shall be tamped unless prevented by trackwork.

12. Prior to the final acceptance of the track by the Engineer for surface and line, the Contractor shall compact the ballast in accordance with Article 3.1. Deviation from this requirement by use of other means shall be approved by the Engineer.

13. Pneumatic or electric tamping tools, either hand held or machine mounted shall be used to perform tamping at portions of turnouts not accessible to a production tamper. Hand tamping with shovels or picks shall not be permitted unless authorized by the Engineer.

14. Two tamping tools shall always be used opposite each other on the same tie. Tampers shall be started from a nearly vertical position and worked downward past the bottom of the tie after which the tool shall be slanted downward to force ballast under the tie. Double tamp every joint tie.

15. Ballast shall be mechanically dressed to provide the proper track cross-section.

16. Excess ballast shall be removed, or may, at the Engineers option, be placed as directed by MTS.

17. Ballast damaged by overwork and/or excessive tamping or fouled by dirt or other deleterious material as determined by the Engineer shall be removed and replaced at no additional cost to MTS.

18. Where new track joins existing track, the existing track shall be surfaced for a minimum distance of 500 feet on mainline or siding tracks, or 200 feet on industrial tracks, from the point of connection or longer as needed to meet Federal 49 CFR Part 213 requirements for highest class of track.

19. After the track has been raised to its final elevation and superelevation, tamping and consolidation of all tracks shall be performed before the track is placed in service. Each segment of track may be placed in full service, as approved by the Engineer, if that segment fully complies with 49 CFR 213, has ballast section full to within 1-inch from top of ties, joints fully bolted, all anchors or elastic fasteners applied, has no more than one consecutive missing crosstie, and the rail fully de-stressed, ballast compacted, and track stabilized as specified in Article 3.1.

20. When raising track, a spot board or other approved device shall be used to maintain grade and a level shall be used to keep track to proper cross level. Laser guided alignment is required with horizontal alignment maintained during the raising operation. Use of automated controls on tampers will satisfy this requirement.

21. In addition to the other requirements specified herein, all newly constructed mainline and mainline siding track, upon completion of final surfacing operations, shall be stabilized as specified in Article 3.1.

22. Contractor may provide alternative installation method for review and approval by the Engineer.

3.07 DRILLING

A. For joining rails with joint bars, provide standard six-hole joints. Drill and space bolt holes in the rail as follows.

1. Drill with clean, sharp and properly shaped drill bits. Use drill RPM as recommended by the bit manufacturer.

2. Drilling for bolted joints shall be in accordance with AREMA, Chapter 4.

   a. Joints for temporarily connection of CWR strings shall leave the center two bolt holes undrilled.

3. Drill holes perpendicular to rail web, using a template as a drilling guide. Provide marked templates specially designed for each drilling pattern as shown. Do not use a joint bar as a drilling guide. Use a drill which is approved by the Contractor or its designee.

4. Following drilling, lightly grind the edges of each bolt hole on each side of the rail with a hand-held grinder to remove burrs or fins resulting from the drilling.

5. Inspect the inside face of each drilled hole for drill-caused ridges or surface scars. Where ridges exist, peen the hole surface with a peening tool to smooth out the irregularities. Where scars exist, cut back the rail and form a new rail end. As an alternate, the Contractor or its designee may allow peening of the scarred surface to see if a smooth-surfaced hole can be formed. Ovaled holes or holes similarly misshaped due to rail-drill movement or other cause will be rejected. Cut back the rail and form a new rail end.

3.08 RAIL ENDS

A. Rail shall be cut with rail saw to a tolerance of 1/32-inch from square. All burrs shall be removed and ends made smooth. Torch cut rails shall be rejected.

B. Battered or mismatched ends must be built up to conform to minimum tolerance of 1/16-inch on top and gage side to adjoining rail.

3.09 RAIL END HARDENING

A. At all rail end locations not eliminated by field welding, rail ends shall be field end hardened in accordance with the AREMA Manual, Volume 1, Chapter 4, Section 2.1.17.1.

3.010 PROCEDURES FOR PLACEMENT OF CWR

A. Track shall be fully fastened, ballasted sufficiently to prevent tie movement, and lined and surfaced prior to final rail adjustment and anchoring. Rail shall be laid or adjusted to the zero-thermal stress at a rail temperature of 105 degrees, +10 degrees, -5 degrees F. The Contractor may heat, cool, or stretch the rail to meet this requirement.

1. Rail temperature shall be determined during rail anchoring by means of a recommended AREMA rail thermometer. The Contractor shall furnish sufficient rail thermometers for the Engineer’s use during field welding and de-stressing operations. Thermometers will be returned to the Contractor after completion of the work. Temperature of rail shall be determined by placing the rail thermometer on the shaded side of the rail base next to the web, and leave until no change in its reading is detected. In no case shall the thermometer be removed in less than five minutes.

2. Temperature record information to be recorded as follows.

   a. Date and time for each string installed.

b. Location by station, left or right rail, and string length.

c. Rail temperature, air temperature, and weather conditions.

d. Rail gap to nearest 1/16 inch.

B. Tie cribs shall be filled with ballast immediately after laying rails and after each track raise. Track shall be surfaced, tamped, lined, and stabilized prior to returning track to full service.

C. If the rail temperature exceeds 120 degrees Fahrenheit, the Engineer reserves the right to suspend rail-laying operations or direct that the rail be cooled. These actions shall not entitle the Contractor to any additional compensation or extension of the contract completion date.

D. Welded rails shall be positioned for installing in a manner to minimize handling and to prevent buckling.

E. The rail base and tie plate or concrete tie rail seat area shall be cleaned to remove foreign material that may interfere with the full bearing contact with the base of the rail. Rails shall be placed base down parallel with track avoiding excessive bending or damage using suitable mechanical equipment. Care shall be taken to avoid placing rails on signal equipment, manhole covers, electrical connections, or near any other facilities that could be susceptible to damage.

F. An Engineer approved rail thermometer shall be used to determine rail temperature. The thermometer shall be placed on the web or base of rail shaded from the sun and left long enough to record the rail temperature accurately. The temperature shall be checked frequently. All rail thermometers shall be calibrated.

G. Tools used for field cutting rails shall be Engineer approved rail saws. Torch-cut rails shall not be installed in the track. Any rail damaged by torches shall be rejected and removed before Installation in the track.

H. Rail shall be destressed in accordance only after final track line and grade has been achieved and ballast stabilized, or as directed by the Engineer. Rail fasteners shall be loosened and the rails adjusted to an effective zero thermal stress at a designated rail temperature of 105 degrees F (plus10 degrees/minus 5 degrees F). De-stressing limits shall extend into existing track to a restriction that prevents rail movement. Rail shall be re-anchored after destressing has been achieved. Rail shall have adequate anchor patterns installed at all stages of construction.

I. CWR rail laying records, including string location plan, length, temperature laying record, and other pertinent information shall become the property of MTS at completion of specific work.

3.011 ANCHORING CWR

A. As used in this part the term “rail anchor” shall also refer to elastic rail fasteners. Install rail-anchoring devices when the rail is within the permissible anchoring temperature. Anchor opposite rail only when its temperature is within 5-degrees Fahrenheit of the previously anchored rail's temperature at the time of its anchoring. Temperatures shall be measured in by placing the rail thermometer on the shaded side of the rail base next to the web, and leaving it until no change in its reading is detected. In no case shall the thermometer be removed in less than 5 minutes. No train operation shall be permitted over rail that does not have a full complement of anchors. If necessary to operate trains before destressing rail, as approved by MTS, anchors shall be removed for the destressing procedure and re-applied. No additional compensation shall be provided for removal and reapplication due to train operations if these actions occur as a result of deviations from the MTS approved schedule.

B. Prior to joining CWR strings, adjust the CWR strings to the preferred rail laying temperature, vibrate to relieve internal rail stresses, and fully anchor.

C. Join CWR strings when the rail gap is at the specified gap. If the rail gap is not within the recommended tolerances for joining CWR strings and the remainder of the string has been adjusted, un-anchor the CWR strings for 400-feet on each side of the rail gap and readjust each CWR string to within the preferred rail laying temperature. Re-anchor the CWR strings before installing the rail joint or weld. If the recommended rail gap cannot be obtained in this manner, cut a section of rail from the end of one of the CWR strings and insert a rail plug not less than 19’-6” long on tangent track and curves less than 2-degrees and not less than 30-feet long in curves of 2-degrees and greater to provide the recommended rail gaps, or crop the rail as necessary to provide the recommended gap. If the Contractor elects to use an artificial means of adjusting the rail for anchoring, the method and equipment proposed shall be approved by MTS. Witness marks shall be made at four (4) or more stations on unanchored rail across the base of the rail and tie plates to confirm actual expansion of the rail in accordance with the calculations.

D. No joints or welds within the body of the curve shall be permitted unless specifically approved by MTS.

3.012 ADJUSTMENT BY MECHANICAL HEATING

A. Rail shall be adjusted for temperature after it has been laid on tie plates but before it is anchored.

B. Rail gaps shall be provided at the end of each continuous welded rail equal to the amount of the expansion that is required for that rail.

C. Heating shall begin at the end of the rail and shall be steadily applied moving forward and without reversing direction until the required expansion has been obtained for that rail. A rail vibrator shall accompany the rail heating process to insure free expansion of the rail in advance of the heated area.

D. Any insulators, pads, clips, or fasteners damaged by the heating process shall be replaced by the Contractor at no cost to MTS.

E. Complete anchoring application shall follow heating as closely as possible. Any deviation or delay will require reheating the rail.

F. Care shall be taken during the heating process so that other work is not damaged.

3.013 THERMAL ADJUSTMENT CALCULATION

A. When it is necessary to adjust the rail already in track, the required increase or decrease may be found by taking the difference between the preferred rail laying temperature and recorded rail temperatures at each string of CWR and calculating the amount of adjustment as specified herein.

B. The number of inches by which a CWR segment shall be increased or decreased to adjust its length for a temperature higher or lower than that at which it was anchored or adjusted may be calculated using the following formula.

1. Req. Adjustment (inches) = 0.0000065 x ΔT (°F) x L (Ft.) x 12, or
2. Req. Adjustment (inches) = 0.000078 x ΔT (°F) x L (Ft.).

C. Example

1. To adjust the length (L) of a 400 feet CWR, fastened at a rail temperature of 60 degrees, to correspond to the length of this rail at a temperature of 105 degrees, subtract 60 from 105 to obtain a difference of 50 degrees (ΔT) and multiply as follows:

a. 0.000078 x 45 x 400 = 1.87”

Rail Temperature Degrees F.	Inches of Increase for 400 feet of Rail to 105 Degrees F.
25	2.50
35	2.25
45	1.75
55	1.50
65	1.25
75	0.94
85	0.50
95	0.25
105	0.00

3.014 RAIL ANCHORAGE RECORD

A. The record shall be kept in in an acceptable, reproducible form. It shall contain the following data for each end of a CWR and at each 400-foot interval during installation.

1. Date and time
2. Track number and rail (East or West, North or South)

3. Station location
4. Weather, air and base of rail temperature
5. Type of fastener
6. Length of rail being anchored

3.015 PROCEDURES FOR PLACEMENT OF JOINTED RAIL

A. This covers both the permanent construction and rehabilitation of jointed rail and the temporary use of rail joints in the CWR pending field welding.

B. When laying jointed rail, each rail shall be carefully placed on the ties with ends square, using standard expansion shims placed between the ends of adjoining rails to ensure proper opening of joint.

C. Shims shall be removed after all joint bolts are tightened.

D. Using temperatures taken on the rails when they are being laid or adjusted; the thickness of the shim to be used for 39 foot rails will be determined by the following table.

Ranges (DegF)	Shim (Inches)
-20 - 0	3/8
0 - 25	1/4
25 - 50	3/16
50 - 75	1/8
75 - 100	1/16
Over 100	Laid Tight

E. Joint bars shall be well oiled and properly applied with full number and correct size of bolts, nuts, and spring washers. Joint bolts shall be properly tightened before spiking rail and the two center bolts shall be tightening in advance of the end bolts.

F. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Nuts shall be placed with the flat side toward the rail. Track bolts, joint bars, and finishing surfaces of rails at joint bars shall be swabbed with oil. Use outer four bolt holes only when installing bolted joints that will be eliminated by field welding. Do not drill inside holes (holes closest to rail ends) at future filed weld locations.

3.016 TRACK CRITERIA AND TOLERANCES

A. Tolerances

Deviations from indicated gauge, cross level, horizontal line, profile grade, and tie spacing shall conform to the following requirements.

1. Track gauge shall be 4' 8-1/2," ± 1/8 inch.

2. Cross level taken at top of rail shall be ± 1/8 inch from level on tangent or design superelevation on curve.

3. Deviation from horizontal alignment:

4. ± 1/8 inch in 31 feet

5. ± 1/2 inch from the planned alignment

6. ± 1/4 inch from the planned alignment adjacent to LRT platforms

Deviation from horizontal circular curves shall be as follows.

7. Adjacent mid-ordinates of 62-foot chords, with half-chord overlaps, shall not vary more than ± 1/8 inch.

8. Average mid-ordinate shall not vary by more than ± 1/4 inch from theoretical mid-ordinate.

9. Deviation from Horizontal Spiral Curves: Mid-ordinate of 62-foot chords, with half- chord overlaps, shall not vary by more than ± 1/8 inch from straight line rate of change.

10. Deviation from top of rail profile grade shall not exceed ± 1/8 inch in 31 feet and ± 1/2 inch from the vertical alignment shown on the Plans.

11. Distance between centerline of adjacent crossties shall not vary more than ± one inch from the indicated spacing.

B. Tag the top of each tie with Engineer approved identification plates signifying the beginning and end of spirals and circular curves or change in degree of curve.

C. Tangent track shall be level and superelevation and runoffs shall be provided on all curves as indicated in the Plans, or as approved by the Engineer.

D. Install track, OTM, turnouts, derails, and road crossings in accordance with the Plans, Track Maintenance and Engineering Instructions, and Federal Railroad Administration and California Public Utilities Commission requirements.

E. Construct track within specified tolerances for uniformity of gage, cross-level, profile grade, and horizontal alignment. Humps, sags, or hollows in track surface or alignment irregularities in excess of specified tolerances shall not be accepted. The final alignment shall be approved by MTS. For any reason, the Engineer may require additional alignment refinements at the Contractor’s expense.

F. The low rail on all superelevated track shall be designated as the profile rail.

G. Rail shall be handled carefully. Refer to current edition of the AREMA Manual for Railway Engineering, Chapters 4 and 5, for specifications on safeguarding and storage of CWR. Bumping or striking rail shall be avoided. Nicked or gouged rails shall be rejected. Minor damage may be repaired as determined and approved by MTS. Bottom of rail, fastener assemblies, and all bearing surfaces shall be broom cleaned before laying. Rail gouged or bent, as determined by the Engineer, by the contractor during Installation shall be removed and replaced by the Contractor at no additional cost to MTS.

H. Do not cut rail strings except as required to fit rail to turnouts, crossings, or limits of work.

I. A thermometer designed to measure rail temperature shall be used in during rail Installation to ensure compliance with the preferred rail laying temperature.

3.017 WELDING OF CONTINUOUS WELDED RAIL

A. Rail welding shall be in accordance with the approved procedure and Section 34 11 16.19, “Thermite-Welded Track Rail.”

3.018 INSULATED JOINTS

A. Each insulated joint installed by the Contractor shall be tested with an insulated joint tester, either the S & C Distribution Company Model 344 or equal approved by the Engineer.

B. Test shall measure no less than 100 ohms across the joint.

C. Test results shall be uniquely identified with a specific joint and submitted to the Engineer in Compliance Record.

D. The rail ends at each insulated joint shall be beveled and hardened in accordance with the manufacturer’s procedures as approved by the Engineer.

E. Contractor must comply with rail end hardening and beveling requirements specified in this Section.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for Railway Line Construction.

4.02 PAYMENT

A. Full compensation for Railway Line Construction shall be considered as included in the contract price paid for various other items within “Civil and Track” on the Bid Price Form therefore no separate payment will be made.

END OF SECTION

SECTION 34 72 13.10
SPECIAL TRACKWORK CONSTRUCTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes specifications for the construction of ballasted special trackwork on wood switch ties.

B. Construction of ballasted special trackwork includes.

1. Hauling of construction materials
2. Welding of special trackwork rail joints
3. Installation of special trackwork
4. Field adjustment of existing special trackwork installations to accommodate new construction.

C. The above construction includes pertinent items associated with special trackwork such as HMA for track, thermite welds, bonded insulated joints, tamping, surfacing, lining and gauging, and other operations necessary to construct an acceptable completed special trackwork structure.

1.02 REFERENCES

A. This Section incorporates by reference the latest revisions of the following documents.

1. American Railway Engineering and Maintenance of Way Association (AREMA)
    a. AREMA Manual for Railway Engineering
    b. AREMA Portfolio of Trackwork Plans

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Installation and maintenance specifications by the manufacturer for the various special trackwork components.

C. Detailed Site Specific Work Plan 90 days prior to commencing construction required for the work specified in this Section. The detailed work plan shall describe schedule and methods for installation of Special Trackwork, including the means of handling switch ties to avoid damage during delivery and installation.

D. Track underlayment plan for turnout installation detailing subgrade compaction processes including manpower, tools, equipment and permanent materials to be used.

E. All test results in accordance with Section 34 72 13, “Railway Line Construction.”

1.04 QUALITY ASSURANCE

A. To determine the acceptability of the installation, the Contractor shall make a final as-built survey of the special trackwork and provide the Engineer with a copy of the report. Deviations from the Contract Drawings that exceed tolerances specified shall be corrected by the Contractor at no additional cost to MTS.

B. Switch points shall mate and rest under the undercut stock rail and provide a continuous contact with stock rail the length of the machined point rail face adjacent to the stock rail.

C. Switch points shall bear on all slide plates or roller assemblies as shown by feeler gages in the thrown operating position.

D. Operation of switch points shall be unrestricted and allow for smooth switch machine operation with current draw to suit the specified switch machine.

E. Refer to Section 34 72 13, “Railway Line Construction,” for ballasted track construction tolerances.

F. Installed Turnout Tolerances

1. Switch point location +/- 1/4 inch of the engineering station.
2. Maximum switch point stagger 1/4 inch
3. Lead +/- 1/2 inch
4. Layout of control switch ties at point of switch and 1/2 inch point of frog, normal to centerline of tangent track and within +/- 1/8 inch.
5. Spacing between switch ties under the switch and frog, +/- 1/4 inch, without accumulation.
6. Spacing between the balance of the switch ties, +/- 1/2 inch, without accumulation.
7. Gauge tolerance in turnout, + 1/16-inch, minus 0.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Owner furnished material shall be handed off to the Contractor in accordance with Section 01 00 00 General Requirements Article 2.01.

B. The Contractor shall handle special trackwork materials in a manner that will prevent damage during loading, unloading, storing, transporting, and installing.

PART 2 - PRODUCTS

2.01 GENERAL

A. Coordinate delivery and acceptance of owner furnished special trackwork as indicated in the Contract Documents. The Contractor shall provide all additional materials to complete the work.

2.02 CONTRACTOR FURNISHED MATERIALS

A. Contractor furnished materials shall be supplied in accordance with the following.

1. Track Rails: Section 34 11 13
2. Track Ballast: Section 34 11 26.13
3. Sub-Ballast and Aggregate Base 34 11 27
4. Thermite Welded Track Rail: Section 34 11 16.19
5. Track Rail Joints: Section 34 11 19
6. Timber Track Cross Ties 34 11 33.16
7. Hot Mix Asphalt for Track and Bridges 34 80 33

PART 3 - EXECUTION

3.01 GENERAL

A. Construct ballasted special trackwork in accordance with the requirements of Section 34 72 13, “Railway Line Construction.”

B. Inspect surface of subballast for defects and ruts or installation variances which would affect subsequent Work. Repair the subballast as required to meet Contract requirements.

3.02 PLACEMENT OF SWITCH TIES

A. Distribute and properly place switch ties on the compacted initial layer of ballast within 2-inches of final vertical alignment. Space ties and align within the limits of special trackwork as indicated on the approved shop drawings. Measurement of tie spacing in special trackwork will be made at the centerline of the tangent track, unless specifically indicated otherwise on the approved shop drawings.

B. Line tie ends from centerline of tangent track as indicated on the approved shop drawings.

C. Field adjustment of existing or new switch tie placement may be necessary to accommodate adjacent tracks, turnouts, joints, or other constraints. The Contractor shall not make field adjustments without approval by the Engineer.

3.03 INSTALLATION OF SPECIAL TRACKWORK

A. Locate special trackwork units using stationing, coordinates, and alignment of key geometric points as indicated on the Contract Drawings.

B. Assemble special trackwork using thermite welds and transition rails as indicated on the approved shop drawings.

C. Installation of, but not limited to, frog plates, switch plates, and plates under the closure rails shall conform to the Contract Drawings and AREMA trackwork standards.

D. When installing the various components of the crossover, particular attention shall be given to the following.

1. Check that alignment, gage, and surface meet Specifications.
2. See that bolts, nuts, cotter pins, and other fastenings are in place, in good condition, and properly tightened.
3. See that switch points fit tightly against rail when switch is thrown in either position and that points bear equally on all ties.
4. See that connecting rod and switch rod bolts are equipped with cotter pins of the proper size for bolt and properly spread.
5. Test-operate the switches for lost motion, difficult throw, or loose connections and adjust and lubricate as necessary and required by the Specifications herein.
6. Examine the rod and fastenings that connect the switch point to the switch equipment to see that they are in place and in good condition.

E. Joints within turnouts shall be welded.

3.04 SURFACING AND ALIGNING BALLASTED SPECIAL TRACKWORK

A. Following the installation of special trackwork on the initial layer of ballast, surface the special trackwork and align as specified herein and in Section 34 72 13, “Railway Line Construction.”

B. Ballast shall be uniformly placed and spread. The crossover shall then be raised and the ballast tamped under both sides of each tie for the full length of the tie. Tamp ballast thoroughly throughout the length of all ties in the crossover or other special trackwork. Uniformly tamp ballast under both sides of each tie, directly under each running rail and edge of special trackwork component for a distance of 18 inches on both sides of the rail. The top of the ballast section shall be approximately 1 inch below the base of the rail throughout the special trackwork unit, except in the cribs containing switch and operating rods where the ballast shall be a minimum of 2 inches below the bottom of the switch rod. The width and slope of the ballast shoulders shall conform to the appropriate sections indicated in the Contract Documents.

C. Compact ballast crib and shoulders with a vibrator shoulder compactor in accordance to compacting requirements in Section 34 72 13, “Railway Line Construction.”

D. Any turnout areas requiring additional digging for installation of OCS or signaling connections shall be re-tamped to maintain uniform surface.

3.05 LUBRICATION

A. At the time of installation, clean and lubricate all sliding surfaces of special trackwork assemblies with a dry film graphite lubricant, if required by special trackwork manufacturer. Grease switch rod clips in accordance with the manufacturer's instructions. Maintain the lubrication specified therein as necessary to ensure proper operation of all components throughout the duration of the Contract.

3.06 BONDED INSULATED JOINTS

A. Install in accordance with Section 34 11 19, “Track Rail Joints”.

B. Each insulated joint installed shall be tested with an insulated joint tester with either a S & C Distribution Company Model 344 or equal approved by the Engineer. Test shall measure no less than 100 ohms across the joint. Test results shall be uniquely identified with a specific joint and submitted to the Engineer.

3.07 FIELD QUALITY CONTROL

A. To determine the acceptability of the installation, the Contractor shall make a final as-built survey of the special trackwork and provide the Engineer with a copy of the report. Deviations from the Contract Drawings that exceed tolerances specified shall be corrected by the Contractor at no additional cost to MTS.

B. Switch points shall mate and rest under the undercut stock rail and provide a continuous contact with stock rail the length of the machined point rail face adjacent to the stock rail.

C. Switch points shall bear on all slide plates and roller assemblies as shown by feeler gages in the thrown operating position.

D. Operation of switch points shall be unrestricted and allow for smooth switch machine operation with current draw to suit the specified switch machine.

E. Refer to Section 34 72 13, “Railway Line Construction,” for ballasted track construction tolerances.

F. Installed turnout tolerances per Article 1.4.F.

3.08 FINAL ALIGNMENT AND INSPECTION

A. The final surface and alignment of special trackwork shall be within the specified tolerances.

B. Measure flangeway clearances.

C. Throw the switch, check freedom of movement, clearances, and measure force required.

D. Conform to additional requirements as indicated in Section 34 72 13, “Railway Line Construction.”

E. Perform final adjustment of switch in cooperation with the Train Control System contractor and as scheduled by the contractor QC or its designee.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. No separate measurement shall be made for Special Trackwork Construction.

4.02 PAYMENT

A. Full compensation for Special Trackwork Construction shall be considered as included in the contract price paid for various other items within “Civil and Track” on the Bid Price Form, therefore no separate payment will be made.

END OF SECTION

SECTION 34 72 13.12
TRACK SHIFTING AND RESURFACING

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all supervision, labor, materials, equipment, transportation, and incidentals necessary to resurface (re-profile) railroad track as shown on the Plans and specified herein. For the purposes of this section, railroad track is defined to include the rail, ties, special trackwork, other track material (OTM), ballast, and walkways although not an exclusive listing.

B. Section 34 72 13, “Railway Line Construction,” will govern track construction, shifting, and modification work associated with this Section.

1.02 REFERENCES

A. This Section incorporates by reference the latest revisions of the following documents.

1. 1. American Railway Engineering and Maintenance of Way Association (AREMA)

   a. AREMA Manual for Railway Engineering

   b. AREMA Portfolio of Trackwork Plans

B. 49 CFR Part 213, Track Safety Standards, most current and addenda, and 49 CFR Part 214 Railroad Workplace Safety, most current and addenda, and Federal Railroad Administration requirements.

C. California Public Utilities Commission, applicable General Orders.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Article 1.06**,** Submittal Procedures, of Section 01 00 00, General Requirements.

B. Detailed construction area work plans 90 days prior to commencing construction required for the work specified in this section.

C. All test results in accordance with Section 34 72 13, “Railway Line Construction.”

D. Submit a list of all track tools and equipment to be employed for resurfacing of rail including rail-cutting, rail-heating devices, and destressing. Track surfacing and alignment equipment shall be laser guided, with a sixteen tamping tool design and be capable of surfacing track switches.

1.04 QUALITY ASSURANCE

A. Perform track shifting, relocation, and surfacing under supervision of a qualified railroad construction project manager, railroad track construction manager, and track foreman. Work shall be performed by personnel experienced in similar railroad track work. The surfacing crew shall include a ground person, with a minimum of three (3) years' experience, qualified to check profile and alignment behind the tamper.

B. Develop a quality program to ensure that the work is performed in accordance with the Contract Documents and within the tolerances provided herein. The program shall be submitted to MTS for review and approval prior to start of any related trackwork activities.

C. Refer to Section 34 72 13, "Railway Line Construction," for ballasted track construction tolerances.

PART 2 - PRODUCTS

2.01 CONSTRUCTION EQUIPMENT

A. All machinery and all machine operators shall comply with applicable sections of 49 CFR 214, Railroad Workplace Safety.

B. All construction loads borne by equipment shall be applied between gage lines of running rails on each track unless approved by MTS.

2.02 TRACK TOOLS

A. Furnish tools and equipment necessary to construct the track.

B. Track gages, track levels, and other tools shall conform to the AREMA "Specifications and Plans for Tools."

C. Tools and equipment shall be maintained in such a condition as not to endanger employees nor damage the work and shall be subject to inspection by the Engineer.

D. Tools not conforming to the standard shall be "dressed" to AREMA recommendations or shall be replaced. Substitution of tools other than AREMA recommendations shall be permitted only with approval of the Engineer.

E. Track levels and gages shall be checked for accuracy at the start of every work shift and at any time the tool is dropped, struck, or damaged. Adjustments shall be performed anytime it is found to have more than 0.050 inches deviation from the nominal measurement value.

2.03 CONTRACTOR FURNISHED MATERIALS

A. Contractor furnished materials shall be supplied in accordance with the following.

1. Ballast shall conform to Section 34 11 26.13, “Track Ballast.”
2. Rail plugs shall conform to Section 34 11 13, “Track Rails.”
3. All other materials required to conform to the requirements of this section and provide a completed track section in accordance with 34 72 13, “Railway Line Construction.”

PART 3 - EXECUTION

3.01 GENERAL

A. Personnel and equipment shall meet the requirements set forth in these specifications.

B. Exercise care in the progression of work under this Contract to avoid and prevent damage to the track being shifted or relocated, adjacent tracks, structures and facilities, including but not limited to existing pavements, pavement bases, drainage structures, light poles, fire hydrants, signal facilities (track wires, bootlegs, signal masts, guy wires, signals, cables, conduits, etc.) utilities, signage, and buildings. Repair or replace damaged structures or facilities to satisfaction of and at no cost to MTS.

C. Perform Work under this section in accordance with these specifications and consistent with track resurfacing standard industry practice.

D. Periodically review the supply of materials, labor, and equipment to ensure a uniform flow of work, advising MTS of material shortages or developing problems that require corrective action.

E. Resurfaced track shall meet the following tolerances.

1. Except for pre-existing gauge corner rail wear, deviation from correct gage of 56-1/2" shall not exceed +/- 1/4" at any point. Deviation measured in any section of 20 consecutive crossties shall not exceed 1/8" at 75% of the crossties and 1/4" at the remaining 25% on all track which was preexisting and not constructed as new under this contract.
2. Track surface will comply with the following table for both existing track construction which was surfaced and rail and ties newly constructed under this contract.

Surface Requirement	Tolerance
Runoff in any 31 feet of rail at the end of a raise may not be more than	1/4 inch
Deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than	3/8 inch
Deviation from designated elevation on spirals may not be more than	1/4 inch
Variations in cross levels on spirals in any 31 feet may not be more than	5/8 inch
Deviation from zero cross level at point on tangent or from designated elevation on curves between spirals may not be more than	3/16 inch
Difference in cross level between two points less than 62 feet apart on tangents and curves between spirals may not be more than	3/8 inch

3. Maximum alignment deviation from uniformity measured in conformance 49 CFR Part, 213.55, Track Safety Standards.
   a. Tangent track - 1/4 inch at mid offset on a 62-foot chord.
   b. Curved track - 1/4 inch from correct mid-ordinate on a 62-foot chord.

F. Elastic clips shall be loosened prior to shifting track to prevent skewed ties. Crossties damaged during track shifting will be replaced by the Contractor at Contractor's expense. All elastic clips, insulators, and tie pads shall be replaced with new material prior to final surfacing to accommodate existing concrete tie.

G. The Contractor, as with any Work within the railroad right-of-way, shall submit a construction area work plan for each track segment that requires resurfacing the active track in accordance with Section 01 00 00 of these technical specifications.

H. Cooperate and coordinate with MTS, other contractors on scene, and local agencies and municipalities as necessary to perform the work.

I. Perform all track shifting and resurfacing work as shown on the Contract Drawings, and in accordance with this section.
   1. Prior to surfacing track, all track and signal work, including placement of subballast shall be completed and accepted by the Engineer.

2. Rough and final surfacing of the entire track section shall be performed as required to provide minimal profile smoothing and adjustment. This surfacing may include providing and placing Ballast per Section 34 72 13, “Railway Line Construction.”

3.02 RESURFACING, ALIGNMENT, AND DRESS

A. Perform all resurfacing within the stated project limit station areas as specified to bring the line and surface into compliance within the track geometry tolerances specified.

B. Resurface the track to zero cross-level on tangent track and to the proper cross-level elevation, with spirals, for the curves as shown on Plans.

C. Ballast shall be spread and the track raised in a series of lifts. No single lift shall be higher than 2 inches except in crossings and turnouts. In raising the track, jacks or equipment shall be regulated to avoid bending of angle bars or straining of joints. When jacks are used, they shall be simultaneously used and properly spaced at not more than quarter points of the rail to avoid breaks or bends in the rail when the track is raised. Both rails shall be raised simultaneously and to proper cross-level by utilizing automatic tampers or standard track level boards with each set of track raising jacks. Each tie shall be tamped from 15 inches inside the rail to the end of the tie. Tamping shall not be permitted at the middle of a tie except in turnouts and road crossings. Both ends of a tie shall be tamped simultaneously and tamping inside and outside the rail shall be done at the same time. Equipment used for surfacing track shall be laser guided, have the ability to line and surface switches, and is subject to approval by MTS, per Section 34 72 13, “Railway Line Construction.”

D. Equipment must be properly maintained, all tamping tools must have a minimum of 70% of the surface area of the tamping tool pad remaining. Those tools with less than 70% remaining must be replaced. Surfacing track with missing tamping tools is not permitted.

E. Ties that become loose during track raising shall be placed in proper position, properly fastened before tamping. During each track raise, track is to be uniformly tamped.

F. Perform the necessary operations to ensure that all ties are at right angles to the track as practical with standard railroad procedures. Cribs between ties shall be fully ballasted and dressed.

G. Perform two tamping squeezes per tie up to 2” of raise with one additional insertion and squeeze for each additional inch of raise. Joint ties shall be given one additional squeeze than other ties. Do not cause center-bound track condition. No raise shall exceed 2” with the final raise shall not exceed 1”.

H. In locations where squeeze tampers cannot fill and compact ballast, such as at frogs, guard rails, switch portions of turnouts, and headblocks, etc., mechanically tamp with approved hand-held air tools or other power tamping tools. Hand tamping shall be done simultaneously from both sides of the tie.

I. On curves, the high rail shall be used as the line rail and the low rail shall be used as the grade rail.

J. When surfacing turnouts, the straight side of the turnout shall be used as the line rail.

K. After the ballast is regulated, dressed and consolidated, ensure that track bolts and rail anchors or elastic track fasteners are tight and in proper alignment.

L. For track resurfacing the total track raise will be the minimum amount necessary to smooth the track profile. In addition, maintain vertical overhead clearances under structures by limiting the amount of track raise. Adjustment of turnouts and connecting tracks to match profile and alignment adjustments on adjacent track shall be provided by Contractor at no additional expense to MTS.

M. Ballast regulating equipment shall be configured to avoid damage to elastic track fastening system components.

3.03 WALKWAYS

A. Walkways shall conform to the General Order No. 118-Public Utilities Commission of the State of California.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

A. Track shifting and resurfacing will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities contained on the Bid Price Form, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.

4.02 PAYMENT

A. Track shifting and resurfacing constructed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Bid Price Form. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications, and as directed by the Engineer.

END OF SECTION

BID PRICE FORM Rev. 3

ORANGE LINE IMPROVEMENT PROJECT PHASE 2
IFB, MTS DOC. NO. PWL445.0-25

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
	MOBILIZATION/DEMOBILIZATION				
1.	Mobilization (not to exceed 5% total bid)	1	EA	$ 2,921,966.00	$ 2,921,966.00
2.	Demobilization	1	EA	$ 25,000.00	$ 25,000.00
			SUBTOTAL - Mobilization/Demobilization		**$ 2,946,966.00**
	CIVIL/TRACK				
3.	Storm Water Management - Water Pollution and Erosion Control	1	LS	$ 750,000.00	$ 750,000.00
4.	Hauling and disposal of hazardous soil (CAL hazardous with manifest) ALLOWANCE UP TO	500	CY	$ 355.00	$ 177,500.00
5.	Hauling and disposal of hazardous soil (hazardous with manifest) ALLOWANCE UP TO	500	CY	$ 305.00	$ 152,500.00
6.	Import and placement of clean fill to replace exported soils ALLOWANCE UP TO	500	CY	$ 125.00	$ 62,500.00
7.	Owner Furnished Track Material Handoff	1	LS	$ 500,000.00	$ 500,000.00
	Station Track Replacement - 47th Street				
8.	Permits	1	LS	$ 5,000.00	$ 5,000.00
8A	Construction Staking and Surveying	1	LS	$ 25,000.00	$ 25,000.00
9.	Traffic and Pedestrian Traffic Control	1	LS	$ 28,023.00	$ 28,023.00
10.	Remove AC Paving over the Tracks (gauge, field, and between tracks)	7950	SF	$ 30.00	$ 238,500.00
11.	Remove Track (from end of 10' transition ties)	781	TF	$ 191.00	$ 149,171.00
12.	Remove Concrete	968	SF	$ 20.00	$ 19,360.00
13.	Not Used				
14.	Install Track per Detail F on Drawing C-26	781	TF	$ 328.00	$ 256,168.00
14A	12" Ballast	608	CY	$ 140.00	$ 85,120.00
15.	Surface Track	1181	TF	$ 20.00	$ 23,620.00
15A	Destressing	1	LS	$ 43,929.00	$ 43,929.00
16.	In-Station Pedestrian Crossings (3) with ENS as indicated on Drawings	1	LS	$ 188,735.00	$ 188,735.00
17.	Not Used				
				Station Track Replacements 47th Street (TOTAL)	$ 1,062,626.00
	Crossing Panel Replacements - Broadway				
18.	Permits	1	LS	$ 5,000.00	$ 5,000.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
18A	Construction Staking and Surveying	1	LS	$ 21,265.00	$ 21,265.00
19.	Traffic and Pedestrian Traffic Control	1	LS	$ 36,538.00	$ 36,538.00
20.	Remove Track	357	TF	$ 212.00	$ 75,684.00
21.	Remove and Replace AC Paving	1255	SF	$ 30.00	$ 37,650.00
22.	Remove and Replace Concrete Sidewalk	1378	SF	$ 35.00	$ 48,230.00
23.	Remove Intertrack Concrete	806	SF	$ 50.00	$ 40,300.00
24.	Remove Existing Detectable Warning Surface and 2" of concrete, fill with concrete, match existing (Lemon Grove Station)	1	LS	$ 34,681.00	$ 34,681.00
25.	Concrete Crossing Panels with Track per ESD 4201	228	TF	$ 665.00	$ 151,620.00
25A	Track	357	TF	$ 442.00	$ 157,794.00
25B	12" Ballast	231	CY	$ 190.00	$ 43,890.00
26.	Surface Track	757	TF	$ 18.00	$ 13,626.00
27.	Not Used				
27A	Destressing	1	LS	$ 24,634.00	$ 24,634.00
28.	Not Used				
28A	AC Paving	1175	SF	$ 40.00	$ 47,000.00
29.	Detectable Warning Surface (DWS)	180	SF	$ 206.00	$ 37,080.00
30.	Epoxy Pebble Warning Strip	40	SF	$ 294.00	$ 11,760.00
31.	Reflectorized Thermoplastic Striping (6" White)	70	LF	$ 32.00	$ 2,240.00
32.	Reflectorized Thermoplastic Striping (Double Yellow)	70	LF	$ 66.00	$ 4,620.00
33.	Paint (Look Both Ways)	1	LS	$ 2,940.00	$ 2,940.00
34.	Paint (Red Curb)	48	LF	$ 26.00	$ 1,248.00
35.	Not Used				
	Crossing Panel Replacements Broadway (TOTAL)				$ 797,800.00
	Crossing Panel Replacements - Lemon Avenue				
36.	Permits	1	LS	$ 5,000.00	$ 5,000.00
36A	Construction Staking and Surveying	1	LS	$ 21,265.00	$ 21,265.00
37.	Traffic and Pedestrian Traffic Control	1	LS	$ 34,243.00	$ 34,243.00
38.	Remove Track	347	TF	$ 216.00	$ 74,952.00
39.	Remove and Replace AC Paving	918	SF	$ 32.00	$ 29,376.00
40.	Remove and Replace Concrete Sidewalk	730	SF	$ 60.00	$ 43,800.00
40A	Remove Intertrack Concrete	730	SF	$ 30.00	$ 21,900.00
41.	Remove and Replace Curb & Gutter	50	LF	$ 221.00	$ 11,050.00
42.	Remove and Replace Traffic Loops (coordinate with City of La Mesa)	1	LS	$ 6,063.00	$ 6,063.00
43.	Concrete Crossing Panels with Track per ESD 4201	163	TF	$ 689.00	$ 112,307.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
43A	Track	347	TF	$ 455.00	$ 157,885.00
43B	12" Ballast	231	CY	$ 190.00	$ 43,890.00
44.	Surface Track	747	TF	$ 19.00	$ 14,193.00
45.	Not Used				
45A	Destressing	1	LS	$ 25,989.00	$ 25,989.00
46.	Not Used				
46A	AC Paving	917	SF	$ 30.00	$ 27,510.00
47.	Detectable Warning Surface (DWS)	180	SF	$ 221.00	$ 39,780.00
48.	Epoxy Pebble Warning Strip	45	SF	$ 221.00	$ 9,945.00
49.	Reflectorized Thermoplastic Striping (6" White)	60	LF	$ 32.00	$ 1,920.00
50.	Reflectorized Thermoplastic Striping (Double Yellow)	60	LF	$ 66.00	$ 3,960.00
51.	Paint (Look Both Ways)	1	LS	$ 2,940.00	$ 2,940.00
52.	Paint (Red Curb)	46	LF	$ 26.00	$ 1,196.00
53.	Railroad Pavement Marking, Traffic Lane	1	LS	$ 3,308.00	$ 3,308.00
54.	Signage	1	LS	$ 3,131.00	$ 3,131.00
55.	Not Used				
56.	Crash Attenuation Barrier (Protect Signal House)	1	LS	$ 94,943.00	$ 94,943.00
				Crossing Panel Replacements Lemon Avenue (TOTAL)	$ 790,546.00
	Crossing Panel and Station Track Replacements - La Mesa Blvd				
57.	Permits	1	LS	$ 5,000.00	$ 5,000.00
57A	Construction Staking and Surveying	1	LS	$ 21,265.00	$ 21,265.00
58.	Traffic and Pedestrian Traffic Control	1	LS	$ 72,188.00	$ 72,188.00
59.	Not Used				
60.	Remove and Replace AC Paving	1960	SF	$ 80.00	$ 156,800.00
61.	Not Used				
62.	Remove and Replace Concrete Sidewalk	215	SF	$ 81.00	$ 17,415.00
63.	Remove and Replace Curb & Gutter	9	LF	$ 368.00	$ 3,312.00
64.	Remove and Replace Traffic Loops (coordinate with City of La Mesa)	1	LS	$ 12,731.00	$ 12,731.00
65.	Concrete Crossing Panels with Track per ESD 4201	178.78	TF	$ 721.00	$ 128,900.38
66.	Not Used				
67.	Not Used				
68.	Not Used				
68A	AC Paving	765	SF	$ 60.00	$ 45,900.00
69.	Detectable Warning Surface (DWS)	210	SF	$ 96.00	$ 20,160.00
70.	Epoxy Pebble Warning Strip	45	SF	$ 257.00	$ 11,565.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
71.	Reflectorized Thermoplastic Striping (6" White)	60	LF	$ 32.00	$ 1,920.00
72.	Reflectorized Thermoplastic Striping (Double Yellow)	60	LF	$ 66.00	$ 3,960.00
73.	Paint (Look Both Ways)	1	LS	$ 3,675.00	$ 3,675.00
74.	Paint (Red Curb)	30	LF	$ 29.00	$ 870.00
75.	Railroad Pavement Marking, Traffic Lane	1	LS	$ 5,146.00	$ 5,146.00
76.	Signage	1	LS	$ 4,781.00	$ 4,781.00
77.	Not Used				
78.	Not Used				
79.	Not Used				
80.	Remove AC Paving over the Tracks (gauge, field, and between tracks)	6627	SF	$ 50.00	$ 331,350.00
81.	Remove Track (Inclusive of C-18, C-19 & C-24)	1250	TF	$ 175.00	$ 218,750.00
82.	Remove Concrete (Pedestrian crossing at north end of station & inter-track concrete)	364	SF	$ 49.00	$ 17,836.00
83.	Not Used				
84.	Install Track per Detail F on Drawing C-26 (Inclusive of C-18, C-19 & C-24)	1250	TF	$ 349.00	$ 436,250.00
84A	12" Ballast	857	CY	$ 190.00	$ 162,830.00
85.	Surface Tracks	1650	TF	$ 18.00	$ 29,700.00
85A	Destressing	1	LS	$ 72,262.00	$ 72,262.00
86.	In-Station Pedestrian Crossings (2) with ENS as indicated on Drawings	1	LS	$ 182,352.00	$ 182,352.00
87.	Not Used				
	Crossing Panel and Station Track Replacements La Mesa Blvd. (TOTAL)				$ 1,966,918.38
	Crossing Panel Replacements - Allison Avenue				
88.	Permits	1	LS	$ 5,000.00	$ 5,000.00
88A	Construction Staking and Surveying	1	LS	$ 21,265.00	$ 21,265.00
89.	Traffic and Pedestrian Traffic Control	1	LS	$ 36,538.00	$ 36,538.00
90.	Remove Track	391	TF	$ 144.00	$ 56,304.00
91.	Remove and Replace AC Paving	2091	SF	$ 30.00	$ 62,730.00
92.	Remove and Replace Concrete Sidewalk	596	SF	$ 120.00	$ 71,520.00
93.	Remove Intertrack Concrete	872	SF	$ 30.00	$ 26,160.00
94.	Remove and Replace Traffic Loops (coordinate with City of La Mesa)	1	LS	$ 8,488.00	$ 8,488.00
95.	Adjust Existing Pullboxes to Grade	1	LS	$ 6,616.00	$ 6,616.00
96.	Concrete Crossing Panels with Track per ESD 4201	211.24	TF	$ 650.00	$ 137,306.00
96A	Track	391	TF	$ 445.00	$ 173,995.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
96B	12" Ballast	232	CY	$ 190.00	$ 44,080.00
97.	Surface Track	791	TF	$ 18.00	$ 14,238.00
98.	Subgrade Preparation	1	LS	$ 7,936.00	$ 7,936.00
98B	Destressing	1	LS	$ 25,989.00	$ 25,989.00
99.	Not Used				
100.	Not Used				
101.	Curb & Gutter	50	LF	$ 257.00	$ 12,850.00
102.	Detectable Warning Surface (DWS)	155	SF	$ 96.00	$ 14,880.00
103.	Epoxy Pebble Warning Strip	45	SF	$ 221.00	$ 9,945.00
104.	Reflectorized Thermoplastic Striping (6" White)	160	LF	$ 24.00	$ 3,840.00
105.	Reflectorized Thermoplastic Striping (Double Yellow)	100	SF	$ 47.00	$ 4,700.00
106.	Paint (Look Both Ways)	1	LS	$ 2,940.00	$ 2,940.00
107.	Paint (Red Curb)	25	LF	$ 32.00	$ 800.00
108.	Paint (Crosswalk Bands)	1	LS	$ 2,940.00	$ 2,940.00
109.	Railroad Pavement Marking, Traffic Lane, Including 24' Wide Stripe	1	LS	$ 5,146.00	$ 5,146.00
110.	Signage	1	LS	$ 3,131.00	$ 3,131.00
111.	Not Used				
			Crossing Panel Replacements Allison Avenue (TOTAL)		$ 759,337.00
	Crossing Panel Replacements - University Avenue				
112.	Permits	1	LS	$ 5,000.00	$ 5,000.00
112A	Construction Staking and Surveying	1	LS	$ 23,325.00	$ 23,325.00
113.	Traffic and Pedestrian Traffic Control	1	LS	$ 40,463.00	$ 40,463.00
114.	Remove Track	665	TF	$ 155.00	$ 103,075.00
115.	Remove and Replace AC Paving	6148	SF	$ 25.00	$ 153,700.00
116.	Remove Intertrack Concrete	1640	SF	$ 30.00	$ 49,200.00
117.	Remove and Replace Traffic Loops (coordinate with City of La Mesa)	1	LS	$ 8,488.00	$ 8,488.00
118.	Concrete Crossing Panels with Track per ESD 4201	503.75	TF	$ 700.00	$ 352,625.00
118A	Track	665	TF	$ 399.00	$ 265,335.00
118B	12" Ballast	380	CY	$ 190.00	$ 72,200.00
119.	Surface Track	1095	TF	$ 17.00	$ 18,615.00
120.	Subgrade Preparation	1	LS	$ 9,898.00	$ 9,898.00
120A	Destressing	1	LS	$ 42,785.00	$ 42,785.00
121.	Not Used				
122.	Not Used				
123.	Detectable Warning Surface (DWS)	60	SF	$ 125.00	$ 7,500.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
124.	Reflectorized Thermoplastic Striping (6" White)	900	LF	$ 12.00	$ 10,800.00
125.	Reflectorized Thermoplastic Striping (Double Yellow)	60	LF	$ 59.00	$ 3,540.00
126.	Paint (Look Both Ways)	1	LS	$ 3,675.00	$ 3,675.00
127.	Restripe all Markings per City Requirements	1	LS	$ 8,821.00	$ 8,821.00
128.	Not Used				
	Crossing Panel Replacements University Avenue (TOTAL)				$ 1,179,045.00
	El Cajon Station Drainage Improvements & Track Replacement				
128A	Permits	1	LS	$ 5,000.00	$ 5,000.00
129.	Construction Staking and Surveying	1	LS	$ 30,080.00	$ 30,080.00
130.	Traffic and Pedestrian Traffic Control	1	LS	$ 146,154.00	$ 146,154.00
131.	Clear and Grub	1	LS	$ 63,952.00	$ 63,952.00
132.	Remove Track	730	TF	$ 190.00	$ 138,700.00
133.	Remove Concrete Around Track (Field and Gauge)	1853	SF	$ 25.00	$ 46,325.00
134.	Remove AC Paving Around Track (Field and Gauge)	6043	SF	$ 35.00	$ 211,505.00
135.	Remove, Grout Fill and Cap Existing DIP	500	LF	$ 51.00	$ 25,500.00
136.	Remove 4" Perforated Grate Inlet	69	FT	$ 66.00	$ 4,554.00
137.	Remove Miscellaneous Existing Storm Drain System	1	LS	$ 11,173.00	$ 11,173.00
138.	Jack and Bore 24" Steel Casing/Storm Drain	101	LF	$ 3,087.00	$ 311,787.00
139.	18" C3000 RCP (Between Tracks)	41	LF	$ 662.00	$ 27,142.00
140.	Precast Storm Drain Catch Basins	2	EA	$ 27,198.00	$ 54,396.00
141.	Not Used				
142.	Not Used				
143.	8" Perforated Subdrain	365	LF	$ 221.00	$ 80,665.00
143A	Track	730	TF	$ 544.00	$ 397,120.00
143B	12" Ballast	530	CY	$ 200.00	$ 106,000.00
144.	Surface Track	1130	TF	$ 20.00	$ 22,600.00
144A	In-Station Pedestrian Crossing Markings and ENS as indicated on Drawings	1	LS	$ 13,848.00	$ 13,848.00
145.	Concrete (gauge, field, and between tracks)	6043	SF	$ 65.00	$ 392,795.00
146.	Not Used				
147.	Thermite Welds	1	LS	$ 10,453.00	$ 10,453.00
	City of El Cajon Improvement Plan (Palm Avenue)				
148.	Permits	1	LS	$ 5,000.00	$ 5,000.00
148A	Construction Staking and Surveying	1	LS	$ 21,265.00	$ 21,265.00
149.	Traffic and Pedestrian Traffic Control	1	LS	$ 171,215.00	$ 171,215.00
150.	Remove and Replace AC Paving	501	SF	$ 65.00	$ 32,565.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
151.	Remove and Replace Concrete Paving	223	SF	$ 100.00	$ 22,300.00
152.	Remove and Replace Concrete Sidewalk	577	SF	$ 50.00	$ 28,850.00
153.	Remove and Replace Concrete Curb & Gutter	31	SLF	$ 294.00	$ 9,114.00
154.	18" RCP D3000	53.74	LF	$ 221.00	$ 11,876.54
155.	Storm Drain Cleanout Per San Diego Regional Standard Drawings D-9	1	EA	$ 32,344.00	$ 32,344.00
156.	Trench Backfill per SDRSD G-24, Type A	53.74	LF	$ 707.00	$ 37,994.18
	El Cajon Station Drainage Improvements & Track Replacement (TOTAL)				$ 2,472,272.72
	Curved Worn Rail Replacement - Spring Street Station Area				
	Curve #1				
157.	Remove and Replace Curved Worn Rail	1200	LF	$ 16.00	$ 19,200.00
158.	Replace Clips (Up to 10% for damaged/defective Pandrol Clips)	120	EA	$ 18.00	$ 2,160.00
159.	Replace Pads	1	LS	$ 2,139.00	$ 2,139.00
160.	Flash Butt Weld Rail Strings (Thermite at west end two ea. & 538+25. one ea.)	5	EA	$ 6,000.00	$ 30,000.00
161.	Surface Track, Add Ballast as Needed (100' runoff both directions each track)	1600	TF	$ 5.00	$ 8,000.00
162.	Destress Track (200' in both directions on each track)	2000	LF	$ 8.00	$ 16,000.00
	Curve #2				
163.	Remove and Replace Curved Worn Rail	1500	LF	$ 15.00	$ 22,500.00
164.	Replace Clips (Up to 10% for damaged/defective Pandrol Clips)	150	EA	$ 18.00	$ 2,700.00
165.	Replace Pads	1	LS	$ 2,139.00	$ 2,139.00
166.	Flash Butt Weld Rail Strings (Thermite at west end two ea. & 543+40 one ea.)	7	EA	$ 6,000.00	$ 42,000.00
167.	Surface Track, Add Ballast as Needed (100' runoff both directions each track)	1900	TF	$ 5.00	$ 9,500.00
168.	Destress Track (200' in both directions on each track)	2300	LF	$ 8.00	$ 18,400.00
169.	Remove and Replace Portion of MTS Maintenance Crossing	1	LS	$ 62,841.00	$ 62,841.00
	Curve #3				
170.	Remove and Replace Curved Worn Rail	3500	LF	$ 14.00	$ 49,000.00
171.	Replace Clips (Up to 10% for damaged/defective Pandrol Clips)	350	EA	$ 18.00	$ 6,300.00
172.	Replace Pads	1	LS	$ 2,139.00	$ 2,139.00
173.	Flash Butt Weld Rail Strings (Thermite at west end four ea. east end two ea.)	14	EA	$ 6,000.00	$ 84,000.00
174.	Surface Track, Add Ballast as Needed (100' runoff both directions each track)	3900	TF	$ 5.00	$ 19,500.00
175.	Destress Track (200' in both directions on each track)	4300	LF	$ 8.00	$ 34,400.00
176.	In-Station Pedestrian Crossings (3) with Emergency Notification Signage	3	EA	$ 93,876.00	$ 281,628.00
	Curve #4				
177.	Remove and Replace Curved Worn Rail	1190	LF	$ 18.00	$ 21,420.00
178.	Replace Clips (Up to 10% for damaged/defective Pandrol Clips)	119	EA	$ 18.00	$ 2,142.00
179.	Replace Pads	1	LS	$ 2,139.00	$ 2,139.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
180.	Flash Butt Weld Rail Strings (Thermite at west end two ea., east end two ea., & 558+64 two ea.)	8	EA	$ 5,790.00	$ 46,320.00
181.	Surface Track, Add Ballast as Needed (100' runoff both directions each track)	1590	TF	$ 27.00	$ 42,930.00
182.	Destress Track (200' in both directions on each track)	1990	LF	$ 32.00	$ 63,680.00
				Curve Worn Rail Replacement Spring Street Station Area (TOTAL)	$ 893,177.00
	Curved Worn Rail Replacement - Baltimore Junction (Curve #5)				
183.	Remove and Replace Curved Worn Rail	1190	LF	$ 30.00	$ 35,700.00
184.	Replace Clips (Up to 10% for damaged/defective Pandrol Clips)	119	EA	$ 18.15	$ 2,160.00
185.	Replace Pads	1	LS	$ 2,139.00	$ 2,139.00
186.	Flash Butt Weld Rail Strings (Thermite at west end two ea., east end two ea., & 558+64 two ea.)	8	EA	$ 4,500.00	$ 36,000.00
187.	Surface Track, Add Ballast as Needed (100' runoff both directions each track)	1590	TF	$ 6.00	$ 9,540.00
188.	Destress Track (200' in both directions on each track)	1990	LF	$ 5.00	$ 9,950.00
				Curve Worn Rail Replacement Baltimore Junction (TOTAL)	$ 95,489.00
	R22 Crossover				
189.	Construction Staking and Surveying	1	LS	$ 25,384.00	$ 25,384.00
190.	Assemble and Install Owner Furnished Crossovers	1	LS	$ 316,847.00	$ 316,847.00
191.	Remove Track and Ballast	901	TF	$ 150.00	$ 135,150.00
191A	Remove Subgrade / Existing Ballast (9'x2x1')(901')/27	601	CY	$ 150.00	$ 90,150.00
192.	Not Used				
193.	Approach and Connecting Track to Turnouts	44	TF	$ 900.00	$ 39,600.00
194.	Walkway ballast per General Order 118A	40	CY	$ 275.00	$ 11,000.00
195.	Subballast (9' either side of CL, 12" below ballast)	601	CY	$ 170.00	$ 102,170.00
196.	Thermite Welds	32	EA	$ 3,000.00	$ 96,000.00
197.	Surface Crossovers and 400' Railroad East and West on each Track	1840	TF	$ 35.00	$ 64,400.00
198.	Destressing	1	LS	$ 43,819.00	$ 43,819.00
199.	Ballast	616	CY	$ 220.00	$ 135,520.00
				R22 Crossover (TOTAL)	$ 1,060,040.00
	E18 Crossover				
200.	Construction Staking and Surveying	1	LS	$ 25,384.00	$ 25,384.00
201.	Assemble and Install Owner Furnished Crossovers	1	LS	$ 317,420.00	$ 317,420.00
202.	Remove Track and Ballast	718	TF	$ 230.00	$ 165,140.00
202A	Remove Subgrade / Existing Ballast (9'x2x1')(718')/27	479	CY	$ 150.00	$ 71,850.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
203.	Approach and Connecting Track to Turnouts	153	TF	$ 900.00	$ 137,700.00
204.	Not Used				
205.	Walkway ballast per General Order 118A	40	CY	$ 275.00	$ 11,000.00
206.	Subballast (9' either side of CL, 12" below ballast)	479	CY	$ 245.00	$ 117,355.00
207.	Thermite Welds	32	EA	$ 3,000.00	$ 96,000.00
208.	Surface Crossovers and 400' Railroad East and West on each Track	2042	TF	$ 30.00	$ 61,260.00
209.	Destressing	1	LS	$ 43,819.00	$ 43,819.00
210.	Ballast	1059	CY	$ 130.00	$ 137,670.00
				E18 Crossover (TOTAL)	$ 1,184,598.00
	Baltimore Junction Diamond and Turnout Replacement				
211.	Construction Staking and Surveying	1	LS	$ 26,293.00	$ 26,293.00
212.	Install Owner Furnished Diamond & Turnout Assembly	1	LS	$ 112,778.00	$ 112,778.00
213.	Remove Turnout, Diamond, Track, and Ballast	384	TF	$ 171.00	$ 65,664.00
231A	Remove Subgrade / Existing Ballast	270	CY	$ 150.00	$ 40,500.00
214.	Install Owner Furnished Split, Transition, and Turnout Replacement Ties	85	TF	$ 440.00	$ 37,400.00
215.	Not Used				
216.	Walkway ballast per General Order 118	20	CY	$ 275.00	$ 5,500.00
217.	Subballast (9' either side of CL, 12" below ballast)	270	CY	$ 175.00	$ 47,250.00
218.	Thermite Welds	38	EA	$ 2,000.00	$ 76,000.00
219.	Surface Turnout and Diamond and Approaches to Diamond & Turnout 400' East and West	1685	TF	$ 30.00	$ 50,550.00
220.	Destressing	1	LS	$ 17,528.00	$ 17,528.00
221.	Ballast	350	CY	$ 190.00	$ 66,500.00
				Baltimore Junction Diamond and Turnout Replacement (TOTAL)	$ 545,963.00
	Insulated Joint (New and Removed)				
222.	Insulated Joint (Removal and replacement of track rail, assume 46' replacement)	43	EA	$ 4,278.00	$ 183,954.00
222A	Destressing (IJ - Removal and replacement of track rail)	1	LS	$ 184,194.00	$ 184,194.00
223.	Insulated Joint (19' 6")	48	EA	$ 1,398.00	$ 67,104.00
223A	Destressing (IJ - 19' 6")	1	LS	$ 149,658.00	$ 149,658.00
224.	Insulated Joint (39')	17	EA	$ 1,374.00	$ 23,358.00
224A	Destressing (IJ - 39')	1	LS	$ 46,048.00	$ 46,048.00
225.	Thermite Weld for Insulated Joint	216	EA	$ 3,372.00	$ 728,352.00
				Insulated Joint (New and Removed) (TOTAL)	$ 1,382,668.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
	Trackwork Associated Switch Machine Conversion or Upgrade				
226.	Trackwork associated w/ conversion of electric lock to power switch machine (E356WL/E14)	2	EA	$ 67,102.00	$ 134,204.00
227.	Walkway ballast per General Order 118 (E356WL/E14)	19	CY	$ 440.00	$ 8,360.00
228.	Trackwork associated with power switch machine upgrade #10 turnout (E12/R26)	2	EA	$ 42,963.00	$ 85,926.00
229.	Walkway ballast per General Order 118 (E12/R26)	19	CY	$ 440.00	$ 8,360.00
230.	Trackwork associated with power switch machine upgrade #10 turnout (E18/R30 (E17B only) & E20/E6 (E19B only))	2	EA	$ 68,721.00	$ 137,442.00
231.	Walkway ballast per General Order 118 (E18/R30-E17B) & (E20/E6-E19B)	19	CY	$ 755.00	$ 14,345.00
232.	Trackwork associated with power switch machine upgrade #10 turnout (E18/R30 (E17A only))	1	EA	$ 62,019.00	$ 62,019.00
233.	Walkway ballast per General Order 118 (E18/R30-E17A)	19	CY	$ 399.00	$ 7,581.00
234.	Trackwork associated with power switch machine upgrade #20 turnout (E12/R26)	2	EA	$ 43,057.00	$ 86,114.00
235.	Walkway ballast per General Order 118 (E12/R26)	28	CY	$ 280.00	$ 7,840.00
236.	Trackwork associated with power switch machine upgrade #20 turnout (E22/E10)	2	EA	$ 43,057.00	$ 86,114.00
237.	Walkway ballast per General Order 118 (E22/E10)	28	CY	$ 280.00	$ 7,840.00
238.	Trackwork associated with power switch machine upgrade #20 turnout (E24/E22)	2	EA	$ 43,057.00	$ 86,114.00
239.	Walkway ballast per General Order 118 (E24/E22)	28	CY	$ 280.00	$ 7,840.00
	Trackwork Associated Switch Machine Conversion or Upgrade (TOTAL)				$ 740,099.00
				SUBTOTAL - CIVIL/TRACK	**$ 16,573,079.10**
	OVERHEAD CATENARY SYSTEM (OCS)				
240.	OCS Pole Foundations (R22, E18)	10	EA	$ 63,485.00	$ 634,850.00
241.	Down Guy Foundations (R22, E18)	4	EA	$ 46,540.00	$ 186,160.00
242.	OCS Poles (R22, E18) (Including material handoff)	10	EA	$ 250,000.00	$ 2,500,000.00
243.	OCS Modifications R22	1	LS	$ 1,509,943.04	$ 1,509,943.04
244.	OCS Modifications E18	1	LS	$ 1,381,096.18	$ 1,381,096.18
245.	OCS Modifications Baltimore Junction	1	LS	$ 498,569.00	$ 498,569.00
				SUBTOTAL - OVERHEAD CATENARY SYSTEM (OCS)	**$ 6,710,618.22**
	RAIL SIGNALING				
246.	Owner Furnished Signal Material Handoff	1	LS	$ 500,000.00	$ 500,000.00
	Signal Locations, New or Modified				
247.	E1653/E1653RCA Signal Location Complete - E26 Interlocking / Palm Avenue	1	LS	$ 237,069.37	$ 237,069.37

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
248.	E1621RC Signal Location Complete- Intermediate Signals	1	LS	$ 173,849.00	$ 173,849.00
249.	E1616RC Signal Location Complete - Hill Street / Intermediate Signal	1	LS	$ 1,099,624.26	$ 1,099,624.26
250.	E1571RC & E1567 Signal Location Complete - Intermediate Signals	1	LS	$ 681,912.00	$ 681,912.00
251.	E1527RC Signal Location Complete - E22 Interlocking	1	LS	$ 1,460,788.07	$ 1,460,788.07
252.	E1507RC Signal Location Complete - AFO Case	1	LS	$ 86,606.00	$ 86,606.00
253.	E1471RC Signal Location Complete - Severin Drive / Intermediate Signal	1	LS	$ 836,458.00	$ 836,458.00
254.	E1455RC Signal Location Complete - Intermediate Signal	1	LS	$ 666,353.00	$ 666,353.00
255.	E1445RC Signal Location Complete - AFO Case	1	LS	$ 147,876.00	$ 147,876.00
256.	E1424RC Signal Location Complete - E18 Interlocking	1	LS	$ 1,894,275.52	$ 1,894,275.52
257.	E1394RC Signal Location Complete - Intermediate Signal	1	LS	$ 525,633.00	$ 525,633.00
258.	E1370RC Signal Location Complete - E14 Interlocking	1	LS	$ 1,088,840.68	$ 1,088,840.68
259.	E1316RC Signal Location Complete - E10 Interlocking	1	LS	$ 1,124,822.84	$ 1,124,822.84
260.	E1297RC & E1291RC Signal Location Complete - E6 Interlocking	1	LS	$ 1,947,138.05	$ 1,947,138.05
261.	Mission Valley Signal Location Tag Relabeling and Replacement	1	LS	$ 19,669.00	$ 19,669.00
262.	R1279RC Signal Location Complete - R30 Interlocking / I-8 Ramps Ped Crossing	1	LS	$ 913,192.00	$ 913,192.00
263.	R1266RC Signal Location Complete - I-8 Ramps Ped Crossing	1	LS	$ 1,110,757.34	$ 1,110,757.34
264.	R1256RC Signal Location Complete - University Avenue	1	LS	$ 1,031,286.05	$ 1,031,286.05
265.	R1241RC Signal Location Complete - Allison Avenue / Intermediate Signal	1	LS	$ 848,554.00	$ 848,554.00
266.	R1230RC Signal Location Complete - La Mesa Boulevard	1	LS	$ 741,859.00	$ 741,859.00
267.	R1224RC Signal Location Complete - Lemon Avenue / Intermediate Signal	1	LS	$ 848,463.00	$ 848,463.00
268.	R1199RC Signal Location Complete - Cut Section	1	LS	$ 584,975.00	$ 584,975.00
269.	R1174RC Signal Location Complete - Intermediate Signal	1	LS	$ 488,234.00	$ 488,234.00
270.	R1114RC Signal Location Complete - Intermediate Signal	1	LS	$ 504,664.00	$ 504,664.00
271.	R1075RC Signal Location Complete - High Street / R26 Interlocking	1	LS	$ 1,281,450.13	$ 1,281,450.13
272.	R1050RC Signal Location Complete - R26 Interlocking	1	LS	$ 901,828.00	$ 901,828.00
273.	R1038RC Signal Location Complete - North Avenue	1	LS	$ 264,221.00	$ 264,221.00
274.	R1025RC Signal Location Complete - Broadway / Intermediate Signal	1	LS	$ 893,782.00	$ 893,782.00
275.	R1000RC Signal Location Complete - Central Avenue / Intermediate Signal	1	LS	$ 1,014,302.67	$ 1,014,302.67
276.	R967RC Signal Location Complete - San Miguel Avenue	1	LS	$ 562,620.00	$ 562,620.00
277.	R945RC Signal Location Complete - R22 Interlocking	1	LS	$ 1,772,196.92	$ 1,772,196.92
278.	R917RC Signal Location Complete - Cut Section	1	LS	$ 333,118.00	$ 333,118.00
279.	R886RC Signal Location Complete - Massachusetts Avenue / Intermediate Signal	1	LS	$ 778,986.00	$ 778,986.00
280.	R847RC Signal Location Complete - R18 Interlocking (Phase 1)	1	LS	$ 22,696.00	$ 22,696.00
281.	Interface Case (#1 and #2) Installation/Wiring/Removal/Relocation for Segment Phasing	1	LS	$ 267,886.00	$ 267,886.00
281A	Temporary Interlocking Naming, to Occur 30 Days Before AWW1	1	LS	$ 21,132.00	$ 21,132.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
				Signal Locations, New or Modified (TOTAL)	$ 27,177,117.90
	Station Communications Case Modifications for CTC				
282.	Amaya Station Comm Case Modifications for CTC	1	LS	$ 26,400.00	$ 26,400.00
283.	Grossmont Station Comm Case Modifications for CTC	1	LS	$ 24,243.00	$ 24,243.00
284.	Baltimore Junction Comm Room Modifications for CTC	1	LS	$ 42,843.00	$ 42,843.00
285.	Spring Street Station Comm Case Modifications for CTC	1	LS	$ 25,322.00	$ 25,322.00
286.	Massachusetts Avenue Station Comm Case Modifications for CTC	1	LS	$ 39,525.00	$ 39,525.00
				Station Communications Case Modifications for CTC (TOTAL)	$ 158,333.00
				SUBTOTAL - RAIL SIGNALING	**$ 27,835,450.90**
	FIBER OUTSIDE PLANT MODIFICATIONS & TESTING				
287.	Baltimore Junction to El Cajon Fiber Installation	1	LS	$ 1,400,423.39	$ 1,400,423.39
288.	Fiber Pullback Plan #1 (Lemon Grove Area)	1	LS	$ 37,160.00	$ 37,160.00
289.	Fiber Pullback Plan #2 (La Mesa Area)	1	LS	$ 37,160.00	$ 37,160.00
290.	Fiber Pullback Plan #3 (I-8 Freeway Ramps Area)	1	LS	$ 116,364.00	$ 116,364.00
291.	E1616RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 50,656.00	$ 50,656.00
292.	E1567RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 50,656.00	$ 50,656.00
293.	E1527RC (E22) Interlocking Fiber Lateral Complete (24 & 72 Backbone)	1	LS	$ 65,447.00	$ 65,447.00
294.	E1471RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 59,746.00	$ 59,746.00
295.	E1455RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 56,674.00	$ 56,674.00
296.	E1424RC (E18) Interlocking Fiber Lateral Complete (24 Backbone, 72 Backbone)	1	LS	$ 61,257.00	$ 61,257.00
297.	E1394RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 47,933.00	$ 47,933.00
298.	E1370RC (E14) Interlocking Fiber Lateral Complete (24 & 144 Backbone)	1	LS	$ 69,337.00	$ 69,337.00
299.	E1316RC (E10) Interlocking Fiber Lateral Complete (24 & 144 Backbone)	1	LS	$ 75,773.00	$ 75,773.00
300.	E1297RC (E6 Interlocking) Fiber Lateral Complete (24 Backbone)	1	LS	$ 42,570.00	$ 42,570.00
301.	E1291RC Fiber Lateral Complete (24&144 Backbone)	1	LS	$ 56,850.00	$ 56,850.00
302.	R1279RC (R30) Interlocking Fiber Lateral Complete (24 Backbone & 144 Backbone)	1	LS	$ 29,172.00	$ 29,172.00
303.	R1266RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 19,336.00	$ 19,336.00
304.	R1256RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 49,522.00	$ 49,522.00
305.	R1241RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 13,694.00	$ 13,694.00
306.	R1230RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 45,130.00	$ 45,130.00
307.	R1224RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 15,139.00	$ 15,139.00
308.	R1199RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 40,531.00	$ 40,531.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
309.	R1174RC Fiber Lateral Complete (24 Backbone & 144 Backbone Resplice)	1	LS	$ 10,372.00	$ 10,372.00
310.	E1143RC Fiber Lateral Removal Complete (24 Backbone)	1	LS	$ 10,372.00	$ 10,372.00
311.	R1114RC Slack Loop Relocation & Fiber Lateral Complete (24 Backbone)	1	LS	$ 42,534.00	$ 42,534.00
312.	R1075RC (R26) Interlocking Fiber Lateral Complete (24 Backbone & 144 Backbone)	1	LS	$ 84,382.00	$ 84,382.00
313.	R1050RC Fiber Lateral & Fiber Pullback Complete (24 Backbone & 144 Backbone Resplice)	1	LS	$ 59,831.00	$ 59,831.00
314.	R1038RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 23,804.00	$ 23,804.00
315.	R1025RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 23,633.00	$ 23,633.00
316.	R1000RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 30,889.00	$ 30,889.00
317.	R967RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 41,335.00	$ 41,335.00
318.	R945RC (R22) Interlocking Fiber Lateral Complete (24 Backbone & Non-Standard CTC Connection)	1	LS	$ 43,048.00	$ 43,048.00
319.	R917RC Fiber Lateral Complete (24 Backbone)	1	LS	$ 51,195.00	$ 51,195.00
320.	R886RC Fiber Lateral Complete & 12 Fiber Lateral for R945RC CTC to Massachusetts Comm Case	1	LS	$ 14,465.00	$ 14,465.00
	SUBTOTAL - FIBER OUTSIDE PLANT MODIFICATIONS & TESTING				**$ 2,876,390.39**
	SUBTOTAL - ALL BASE WORK				**$ 56,942,504.61**
	CONTRACT ALTERNATES				
	ALTERNATE 1 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 1				
321.	Removal of Abandoned Aerial Cables Segment 1	1	LS	$ 81,355.00	$ 81,355.00
	SUBTOTAL ALTERNATE 1 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 1				$ 81,355.00
	ALTERNATE 2 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 2				
322.	Removal of Abandoned Aerial Cables Segment 2	1	LS	$ 71,187.00	$ 71,187.00
	SUBTOTAL ALTERNATE 2 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 2				$ 71,187.00
	ALTERNATE 3- REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 3				
323.	Removal of Abandoned Aerial Cables Segment 3	1	LS	$ 40,679.00	$ 40,679.00
	SUBTOTAL ALTERNATE 3 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 3				$ 40,679.00
	ALTERNATE 4- REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 4				
324.	Removal of Abandoned Aerial Cables Segment 4	1	LS	$ 10,171.00	$ 10,171.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
	SUBTOTAL ALTERNATE 4 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 4				$ 10,171.00
	ALTERNATE 5- REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 6				
325.	Removal of Abandoned Aerial Cables Segment 6	1	LS	$ 81,355.00	$ 81,355.00
	SUBTOTAL ALTERNATE 5 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 6				$ 81,355.00
	ALTERNATE 6- REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 7				
326.	Removal of Abandoned Aerial Cables Segment 7	1	LS	$ 50,847.00	$ 50,847.00
	SUBTOTAL ALTERNATE 6 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 7				$ 50,847.00
	ALTERNATE 7- REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 8				
327.	Removal of Abandoned Aerial Cables Segment 8	1	LS	$ 50,847.00	$ 50,847.00
	SUBTOTAL ALTERNATE 7 - REMOVAL OF ABANDONED AERIAL CABLES SEGMENT 8				$ 50,847.00
	ALTERNATE 8 -RAIL SIGNAL SPARE PARTS				
328.	Western Cullen Hayes Model 3597 Gate Mechanisms	1	EA	$ 9,963.00	$ 9,963.00
329.	12-inch Flashing Light Signal LED lamp units	6	EA	$ 408.00	$ 2,448.00
330.	LED lamp units – RED	10	EA	$ 571.00	$ 5,710.00
331.	LED lamp units – YELLOW	10	EA	$ 571.00	$ 5,710.00
332.	LED lamp units – GREEN	10	EA	$ 571.00	$ 5,710.00
333.	LED lamp units – LUNAR	5	EA	$ 573.00	$ 2,865.00
334.	ElectroLogIXS VLC 9-Slot Chassis	3	EA	$ 10,987.00	$ 32,961.00
335.	ElectroLogIXS Central Display Units (CDU-2)	3	EA	$ 2,422.00	$ 7,266.00
336.	ElectroLogIXS Central Power Supply (CPS-3) Modules	5	EA	$ 2,049.00	$ 10,245.00
337.	ElectroLogIXS Vital Peripheral Master (VPM-3) Modules	5	EA	$ 9,219.00	$ 46,095.00
338.	ElectroLogIXS Communication Input/Output (CIO-1A) Modules	5	EA	$ 1,736.00	$ 8,680.00
339.	ElectroLogIXS Communication Input/Output (CIO-2A) Modules	5	EA	$ 1,676.00	$ 8,380.00
340.	ElectroLogIXS Vital Input/Output (VIO-86S) Modules	15	EA	$ 8,232.00	$ 123,480.00
341.	ElectroLogIXS Vital Lamp Driver (VLD-R16S) Modules	10	EA	$ 6,546.00	$ 65,460.00
342.	ElectroLogIXS Vital Track Interface (VTI-2S) Modules	10	EA	$ 5,940.00	$ 59,400.00
343.	ElectroLogIXS Integrated Crossing Controller (IXC-20S+) w/ Personality Modules	5	EA	$ 9,069.00	$ 45,345.00
344.	Ethernet Switch (RS900)	5	EA	$ 3,412.00	$ 17,060.00
345.	Ethernet Switch (RS910)	3	EA	$ 5,085.00	$ 15,255.00
346.	Electrified Electrocodse (EC^2) E2CODE Configuration A Units Complete with Modules	3	EA	$ 30,345.00	$ 91,035.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
347.	HF-MAX 12V 60AMP Charger	1	EA	$ 3,350.00	$ 3,350.00
348.	HF-MAX 12V 40AMP Charger	1	EA	$ 2,734.00	$ 2,734.00
349.	Wilmore Model 1675-12-24-8 DC/DC 12/24 Converter	3	EA	$ 838.00	$ 2,514.00
350.	Style ST-400-1 Transformer	1	EA	$ 2,926.00	$ 2,926.00
351.	PSO 4000 Crossing Assembly (Siemens PN7A474)	2	EA	$ 12,275.00	$ 24,550.00
352.	PSO 4000 Transmitter Assembly (Siemens PN7A471)	2	EA	$ 4,039.00	$ 8,078.00
353.	PSO 4000 Transceiver Assembly (Siemens PN7A475)	2	EA	$ 6,352.00	$ 12,704.00
354.	20 Amp Crossing Interface Panel (XIP-20B)	5	EA	$ 1,185.00	$ 5,925.00
355.	Hitachi Rail STS M23-A (N4511600535) right-hand dual control switch machines complete with mounting plates, layouts and associated hardware.	1	EA	$ 40,518.00	$ 40,518.00
356.	Hitachi Rail STS M23-A (N4511600536) left-hand dual control switch machines complete with mounting plates, layouts and associated hardware.	1	EA	$ 40,518.00	$ 40,518.00
357.	Relay - Track PV-250 (2F-2B, 60/100 Hz)	2	EA	$ 21,768.00	$ 43,536.00
358.	PV-250 Base	2	EA	$ 576.00	$ 1,152.00
359.	Relay - Biased Neutral 6FB 500 ohm B-1 (A62-125)	10	EA	$ 1,875.00	$ 18,750.00
360.	B-1 relay base complete with installation kit, gold test nut, posts, and hardware.	10	EA	$ 204.00	$ 2,040.00
361.	Quest Local Control Panel	2	EA	$ 5,326.00	$ 10,652.00
362.	Vartech Monitors	2	EA	$ 10,226.00	$ 20,452.00
363.	100Hz Railroad Frequency Converter	2	EA	$ 17,850.00	$ 35,700.00
363A	Impedance Bond (Twinco 000-1667-1-0)	8	EA	$ 8,141.00	$ 65,128.00
	SUBTOTAL ALTERNATE 8 - RAIL SIGNAL SPARE PARTS				$ 904,295.00
	ALTERNATE 9 -LEGACY SIGNAL CASE AND LEGACY POLE JUNCTION BOX REMOVAL				
364.	Removal of Pole Junction Boxes	52	EA	$ 406.00	$ 21,112.00
365.	E1643RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
366.	E1620RC Removal	1	LS	$ 2,000.00	$ 2,000.00
367.	E1609RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
368.	E1585RC/RCA Removal	1	LS	$ 2,000.00	$ 2,000.00
369.	E1572RC Removal	1	LS	$ 2,000.00	$ 2,000.00
370.	E1560RC Removal	1	LS	$ 2,000.00	$ 2,000.00
371.	E1527RC/RCA/RCB Removal	1	LS	$ 6,000.00	$ 6,000.00
372.	E1507RC Removal	1	LS	$ 406.00	$ 406.00
373.	E1500RC Removal	1	LS	$ 2,000.00	$ 2,000.00
374.	E1498RC Removal	1	LS	$ 406.00	$ 406.00
375.	E1473RC Removal	1	LS	$ 2,000.00	$ 2,000.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
376.	E1468RC/RCA Removal	1	LS	$ 2,000.00	$ 2,000.00
377.	E1468TWC/RCX/AFO Removal	1	LS	$ 4,000.00	$ 4,000.00
378.	E1442RC Removal	1	LS	$ 3,216.00	$ 3,216.00
379.	E1416RC Removal	1	LS	$ 2,000.00	$ 2,000.00
380.	E1392RC Removal	1	LS	$ 2,000.00	$ 2,000.00
381.	E1384RC Removal	1	LS	$ 2,000.00	$ 2,000.00
382.	E1371RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
383.	E1351RC Removal	1	LS	$ 2,000.00	$ 2,000.00
384.	E1340RC Removal (Under Jackson Dr. Bridge)	1	LS	$ 2,000.00	$ 2,000.00
385.	E1319RC Removal	1	LS	$ 2,000.00	$ 2,000.00
386.	E1296RC Removal	1	LS	$ 2,000.00	$ 2,000.00
387.	E1530RC (MVE) Removal (3 cases)	1	LS	$ 6,000.00	$ 6,000.00
388.	E1287RC Removal	1	LS	$ 406.00	$ 406.00
389.	E1279RCA Removal	1	LS	$ 406.00	$ 406.00
390.	E1274RC Removal	1	LS	$ 406.00	$ 406.00
391.	E1268RC/E1269RC Removal	1	LS	$ 4,406.00	$ 4,406.00
392.	E1260RC Removal	1	LS	$ 406.00	$ 406.00
393.	E1228RCX Removal	1	LS	$ 2,000.00	$ 2,000.00
394.	E1255RC Removal	1	LS	$ 2,000.00	$ 2,000.00
395.	E1250RC Removal	1	LS	$ 2,000.00	$ 2,000.00
396.	E1239RC/RCA/RCB Removal	1	LS	$ 6,000.00	$ 6,000.00
397.	E1228RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
398.	E1222RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
399.	E1239RCX Removal	1	LS	$ 4,406.00	$ 4,406.00
400.	E1202RC Removal	1	LS	$ 2,000.00	$ 2,000.00
401.	E1239TWC Removal	1	LS	$ 406.00	$ 406.00
402.	E1196RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
403.	E1192RC Removal	1	LS	$ 406.00	$ 406.00
404.	E1175RC Removal	1	LS	$ 2,000.00	$ 2,000.00
405.	E1143RC Removal	1	LS	$ 2,000.00	$ 2,000.00
406.	E1104RC Removal	1	LS	$ 2,000.00	$ 2,000.00
407.	E1089RC Removal	1	LS	$ 406.00	$ 406.00
408.	E1070RC/RCA Removal	1	LS	$ 2,000.00	$ 2,000.00
409.	E1024TWC Removal	1	LS	$ 2,000.00	$ 2,000.00
410.	E1058RC/RCA Removal	1	LS	$ 6,000.00	$ 6,000.00
411.	E1024RCX Removal	1	LS	$ 406.00	$ 406.00

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
412.	E1045RC Removal	1	LS	$ 2,000.00	$ 2,000.00
413.	E1038RCX Removal	1	LS	$ 406.00	$ 406.00
414.	E1024RC Removal	1	LS	$ 2,000.00	$ 2,000.00
415.	E1018RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
416.	E998RC/RCA Removal	1	LS	$ 4,406.00	$ 4,406.00
417.	E993RC Removal	1	LS	$ 405.00	$ 405.00
418.	E968RC Removal	1	LS	$ 2,000.00	$ 2,000.00
419.	E953RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
420.	E937RC Removal	1	LS	$ 406.00	$ 406.00
421.	E924RC/RCA Removal	1	LS	$ 4,000.00	$ 4,000.00
422.	E915RC Removal	1	LS	$ 406.00	$ 406.00
423.	E884RC/RCA/RCB	1	LS	$ 6,000.00	$ 6,000.00
	SUBTOTAL ALTERNATE 9 - LEGACY SIGNAL CASE AND LEGACY POLE JUNCTION BOX REMOVAL				$ 165,229.00
	DEDUCTION 1 - FIVE (5) YEAR COMMERCIAL GENERAL LIABILITY COVERAGE TO 12 MONTHS				
	Modify 5-Year Commercial General Liability Insurance Requirement, reduce to 12 months **> Annotation** Per Section 32, Insurance, of the IFB, under the sub-section Commercial General Liability, it currently states: "At all times during this contract and, with respect to Products and Completed Operations Liability, for five (5) years following the acceptance of the work by MTS..." This contract alternate modifies the requirement as follows: "At all times during this contract and, with respect to Products and Completed Operations Liability, for 12 months ~~five (5) years~~ following the acceptance of the work by MTS..."	1	LS		
424.				$ (500.00)	$ (500.00)
	SUBTOTAL DEDUCTION 1 - FIVE (5) YEAR COMMERCIAL GENERAL LIABILITY COVERAGE TO 12 MONTHS				$ (500.00)
	SUBTOTAL ALL ALTERNATES AND DEDUCTION				**$ 1,455,465.00**
	Grand Total Basis of Award (Base Plus All Alternates and Deduction)				***$ 58,397,969.61***

The base bid and any alternate pricing is all-inclusive and must include the costs for the bid bond, performance and payment bonds, and insurance. MTS will not pay additional or separate costs for these

LINE NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
	pay additional or separate costs for these.				

Metropolitan Transit System

Agenda Item No. 08

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Barracuda Subscription Renewal 3 Year – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3208.0-26 (in substantially the same format as Attachment A), with Datel Systems Incorporated (Datel), for a three-year renewal of Barracuda software and hardware subscription services, in the amount of $262,910.00.

Budget Impact

The total cost of this contract is estimated to be $262,910.00 (Attachment B). The contract will be funded by the Information Technology (IT) Operating Budget as follows:

Budget Account	Amount
661010-234000	$219,636.00
661010-571250	$43,274.00
Total Contract Amount:	**$262,910.00**

DISCUSSION:

MTS relies on Barracuda cloud-hosted solutions to protect the agency from malicious emails and create an archive of all emails. The Barracuda Email Gateway Defense provides a multi-layer security approach to scan and deliver emails, sending emails to quarantine, if necessary. The Barracuda Cloud Archiving Service copies all emails to an archive that is searchable and retrievable for all users. This archiving also allows MTS to reduce the number of emails stored in a user's mailbox, reducing the amount of storage consumed in their mailbox.

Along with this subscription, MTS also uses another Barracuda product for web filtering. A pair of these Web Security Gateways has been deployed at MTS for redundancy in the event of any hardware failure. These appliances filter web traffic, block malware, and enforce Internet usage policies to help protect the agency.

The Barracuda products have proven to be a vital piece of the MTS email infrastructure and must remain under support in case of any unexpected outages or issues that may require Barracuda support and expertise. Given the critical nature of these systems, it is imperative to

have a reliable support contract in place to address any potential issues promptly and minimize downtime.

On April 15, 2026, MTS issued an Invitation for Bids (IFB) to procure a renewal of our Barracuda software and hardware subscriptions. A total of twenty-three (23) bids were received by the due date of May 5, 2026. Four (4) of the twenty-three (23) bidders were deemed non-responsive for not submitting the required bid form or for making bid form mistakes.

Below is a summary of the bids received:

Bidder Name	Total Bid Amount	Certifications
MTS Independent Cost Estimate (ICE)	$301,760.00	N/A
Questivity Inc**	$45,838.80	Small Business (SB)
Hypertec USA Inc**	$47,253.84	N/A
Howard Industries Inc**	$50,318.00	N/A
Datel Systems Incorporated*	**$262,910.00**	SB
Numeriksoft	$271,672.92	SB
AlxTel	$272,297.80	N/A
Asimer Tech LLC	$272,376.68	N/A
American Business Solutions Inc	$273,151.00	N/A
vCloud Tech Inc**	$273,585.76	N/A
Software Information Resource Corp	$273,620.92	Women Owned Small Business (WOSB)
IT Devices Online Inc	$273,965.44	SB; Minority Business Enterprise (MBE)
Saitech Inc	$274,512.00	N/A
vPrime Tech Inc	$275,995.08	N/A
Triune Infomatics Inc	$276,744.04	SB
Draycor Inc	$278,380.00	N/A
Natix Inc	$278,445.20	Veteran Owned Small Business (VOSB); Service-Disabled Veteran-Owned Small Business (SDVOSB); Disabled Veteran Business Enterprise (DVBE)
Tech Advanced Computers Inc	$279,606.00	N/A
Smart IT Pros Inc	$279,732.04	N/A
Federal Cyber Systems	$279,983.04	WOSB
Sehi Computer Products Inc	$283,596.60	N/A
Oakland Consulting Group	$296,278.46	MBE
Cluster Technology Group	$339,495.97	VOSB; SDVOSB
Sai Infotek Inc	$1,587,572.56	N/A

**Lowest responsive and responsible Bidder*
***Non-responsive*

Datel met all the solicitation requirements; therefore, staff deemed Datel to be the lowest responsive and responsible bidder. Their bid has been determined to be fair and reasonable based on a comparison of all bids received.

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute MTS Doc. No. G3208.0-26 (in substantially the same format as Attachment A), with Datel, for a three-year renewal of Barracuda software and hardware subscription services, in the amount of $262,910.00.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. Draft Agreement, MTS Doc. No. G3208.0-26
B. Bid Form
C. Scope of Work

Metropolitan Transit System

STANDARD AGREEMENT
FOR

MTS DOC. NO. G3208.0-26

BARRACUDA SUBSCRIPTION RENEWAL 3 YEARS

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: Datel Systems Incorporated

Address: 4393 Viewridge Avenue Suite C
San Diego, CA 92123

Form of Business: S-Corporation
(Corporation, Partnership, Sole Proprietor, etc.)

Email: bbryant@datelsys.com

Telephone: (858) 571-3100

Authorized person to sign contracts: Bill Bryant (Name) — Vice President of Sales (Title)

The Contractor agrees to provide services as specified in the conformed Scope of Work/Minimum Technical Specification (Exhibit A), Contractor's Bid/Pricing Form (Exhibit B), and in accordance with the Standard Agreement, including Standard Conditions (Exhibit C), and Forms (Exhibit D).

The contract term is for three (3) years effective June 29, 2026 through June 28, 2029.

Payment terms shall be net 30 days from invoice date. The total cost of this contract shall not exceed $262,910.00 without the express written consent of MTS.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM	DATEL SYSTEMS INCORPORATED
By: _____ Sharon Cooney, Chief Executive Officer	By _____
Approved as to form:	
By: _____ Karen Landers, General Counsel	Title: _____

DRAFT

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

Metropolitan Transit System

BARRACUDA SUBSCRIPTION RENEWAL 3 YEAR IFB - BID FORM

MTS Doc. No. G3208.0-26

Proposer Name: Datel Systems Incorporated

Barracuda Cloud Account SN# 2417997

Manufacturer Part Number	Description	Term (Months)	Monthly Unit Price	Extended Price
EP-EGD-Usr-1M	Email Protection, Email Gateway Defense (930 Users)	36	$ 2,847.00	$ 102,492.00
EP-CAS-Usr-1M	Email Protection, Cloud Archiving Service (930 Users)	36	$ 3,254.00	$ 117,144.00
BYF610a-e	Web Security Gateway Appliance 610 Energize Updates (Serial Number: 2393905)	35	$ 353.00	$ 12,355.00
BYF610a-h	Web Security Gateway Appliance 610 Instant Replacement (Serial Number: 2393905)	35	$ 296.00	$ 10,360.00
BYF610a-e	Web Security Gateway Appliance 610 Energize Updates (Serial Number: 2514024)	33	$ 339.00	$ 11,187.00
BYF610a-h	Web Security Gateway Appliance 610 Instant Replacement (Serial Number: 2514024)	33	$ 284.00	$ 9,372.00
			Grand Total (Basis of Award)	**$ 262,910.00**

BIDDER ACCEPTS RESPONSIBILITY FOR ACCURACY AND PRESENTATION OF THE ABOVE NUMBERS.

In the case of calculation errors, unit prices will prevail. ***Unit prices shall be rounded to the nearest cent.*** *The above quantities are for bidding purposes only and are based on MTS' current usage. They represent what MTS anticipates as a requirement, but MTS does not guarantee this quantity. The actual quantity ordered may be more or less than what is anticipated on the pricing form, and it is dictated by MTS actual requirements and the available funding at the time each order is initiated.* ***NOTE:*** *The monthly unit price for line items that have users must include all users. Do not submit a per user, per month unit price.*

1. SCOPE OF WORK/TECHNICAL SPECIFICATIONS

1.1. BACKGROUND

MTS relies on Barracuda cloud hosted solutions to protect the company from malicious emails and create an archive of all emails. The Barracuda Email Gateway Defense (EGD) provides a multi-layer security approach to scan and deliver emails, sending emails to quarantine if necessary, while the Barracuda Cloud Archiving Service copies all emails to an archive that is searchable and retrievable for all users. This archiving also allows us to reduce the number of emails stored in a user's mailbox based on a retention policy, reducing the amount of storage consumed in their mailbox.

Along with this subscription, MTS also uses another Barracuda product for web filtering. A pair of these Web Security Gateways (WSG) have been deployed at MTS for redundancy in the event of any hardware failure. These appliances filter web traffic, block malware, and enforce Internet usage policies to help protect the agency.

The Barracuda products have proven to be a vital piece of the MTS email infrastructure and must remain under support in case of any unexpected outages or issues that may require Barracuda support and expertise. Given the critical nature of these systems, it is imperative to have a reliable support contract in place to address any potential issues promptly and minimize downtime.

1.2. OBJECTIVE

To ensure the continuous operation and protection of the current MTS email infrastructure, the MTS IT department intends to renew its existing Barracuda subscription for 3 years, paid upfront. MTS has established a direct collaboration with the Barracuda team, specifying the SKU requirements outlined in this Scope of Work (SOW). This request pertains exclusively to the procurement of the SKUs explicitly recommended by Barracuda, detailed in the technical specifications below.

1.3. TECHNICAL SPECIFICATIONS

SKU: EP-EGD-Usr-1M
Description: Email Protection, Email Gateway Defense, per User, 1 Month
Term: 36 months (6/29/26-6/28/29)
Quantity: 930 users

SKU: EP-CAS-Usr-1M
Description: Email Protection, Cloud Archiving Service, per User, 1 Month
Term: 36 months (6/29/26-6/28/29)
Quantity: 930 users

SKU: BYF610a-e
Description: Web Security Gateway Appliance 610 Energize Updates, 1 Month
Term: 35 (co-term 8/24/26 – 6/28/29)
Serial Number: 2393905

SKU: #BYF610a-h
Description: Web Security Gateway Appliance 610 Instant Replacement, 1 Month
Term: 35 (co-term 8/24/26 – 6/28/29)
Serial Number: 2393905

SKU: BYF610a-e
Description: Web Security Gateway Appliance 610 Energize Updates, 1 Month
Term: 33 (co-term 9/29/26 – 6/28/29)
Serial Number: 2514024

SKU: #BYF610a-h
Description: Web Security Gateway Appliance 610 Instant Replacement, 1 Month
Term: 33 (co-term 9/29/26 – 6/28/29)
Serial Number: 2514024

1.4. TARIFFS

All quoted pricing should be "EXCLUSIVE" of tariffs. In the event there are tariffs imposed across any items under this contract, the Contractor may request separate payment through the submission of CBP Form 7501 outlining the HTSUS rate (Box 33) and Duty charged (Box 34) for the description (Box 28) and quantity (Box 30 & 31) of the item which should match the MTS Purchase Order particulars.

Tariff charges may be invoiced under a separate charge to each purchase order once approved by MTS.

1.5. INVOICES

Invoices must be sent to the MTS Accounting Department, via email, at ap@sdmts.com. All invoices must have the Purchase Order and contract number clearly displayed to ensure timely payment. MTS will not pay on packing slips, receiving documents, delivery documents, or other similar documents. Invoices must be submitted for payment.

Payment terms shall be net 30 days from invoice date. If MTS rejects an incorrectly submitted invoice and sends it back for correction, the net 30 days restart from the corrected invoice date.

Contractors must also indicate if any of the invoiced amount(s) is for service or work provided by a subcontractor and indicate the amount that will be paid to the subcontractor. Contractors must also comply with the prompt payment requirements in the *Prompt Progress Payments* section of the Standard Conditions.

1.6. [NOT APPLICABLE] PAYMENT PROCESSING SECURITY AND PAYMENT CARD INDUSTRY (PCI) DATA SECURITY STANDARD (DSS) COMPLIANCE

1.7. [NOT APPLICABLE] HEWLETT PACKARD ENTERPRISE (HPE) MINIMUM REQUIREMENTS

1.8. [NOT APPLICABLE] CISCO MINIMUM REQUIREMENTS

1.9. [NOT APPLICABLE] CONTRACTOR'S INFORMATION SECURITY RESPONSIBILITIES

1.10. [NOT APPLICABLE] SAFETY DATA SHEETS (SDS)

1.11. [NOT APPLICABLE] NO RIGHT TO POST SIGNS

1.12. [NOT APPLICABLE] WARRANTY

1.13. [NOT APPLICABLE] REPLACEMENT PARTS

1.14. DELIVERY AND ACCEPTANCE

The current subscription for EGD and Cloud Archiving Service expires June 28, 2026, while one WSG expires August 23, 2026, and the other WSG on September 28, 2026. This renewal will co-term all the products so their expiration will be June 28, 2029. The renewal must be recorded accurately under the MTS account and can be referenced under Barracuda Cloud Account SN# 2417997.

After the support contract is renewed, MTS will confirm its completion by ensuring the updated support agreement is correctly reflected in the Barracuda Cloud Control portal.

1. The support contract renewal must be accurately recorded under the specified MTS account.
2. Proof of the updated support agreement must be visible and verifiable in the Barracuda Cloud Control portal.
3. MTS will provide formal written notification of acceptance within five business days of the agreement being updated in the Barracuda Cloud Control portal.

1.15. [NOT APPLICABLE] LIQUIDATED DAMAGES

Metropolitan Transit System

Agenda Item No. 09

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Bridge Maintenance, Blue Line South – JOC Work Order Agreement

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute Work Order No. MTSJOC347-48 under MTS Doc. PWG347.0-22 (in substantially the same format as Attachment A), with ABC General Contractor, Inc. (ABCGC), in the amount of $272,030.17 for addressing routine repair, maintenance, and housekeeping items noted during the annual bridge inspection report for Blue Line South.

Budget Impact

The total cost of this contract is estimated to be $272,030.17. Under separate MTS Doc No. L1282.0-16, with The Gordian Group, MTS will pay a 1.76% JOC software license fee in the amount of $4,787.73. The project will be funded by the San Diego Trolley, Inc. (SDTI) Track Maintenance Operating Budget account 370016-536600.

DISCUSSION:

MTS owns and manages a railroad corridor within its jurisdiction. Throughout the operating right of way, there are a total of eighty-two (82) significant bridge structures which require safety inspection on an annual basis. Bridge inspection services are conducted by Jacobs Project Management Co (MTS Work Order No. WOA2497-CM23), in conformance with American Railway Engineering and Maintenance-of-Wayside Association (AREMA) recommended practices, and applicable Federal Railroad Administration (FRA), California Public Utilities Commission (CPUC), and Occupational Safety and Health Administration (OSHA) regulations.

During the annual inspection of the Blue Line South bridges in June 2025, various routine repair, maintenance, and housekeeping items were noted by the inspectors. These tasks are outside of the typical work performed by MTS maintenance crews and therefore must be addressed by an outside contractor. The work is necessary to ensure the structures are in a good state of repair and in compliance with applicable regulations. Today's proposed action would issue a JOC work order to complete the identified repairs.

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

JOC is a procurement method under which public agencies may accomplish frequently encountered repairs, maintenance, and construction projects through a single, competitively procured long-term agreement.

The JOC program includes a catalogue of pricing for a variety of potential tasks to be performed under the contract that has been pre-priced by the contractor, the Gordian Group. All potential contractors are subject to the pricing within this catalogue. Each contractor then includes an adjustment factor, escalating their proposed price from the catalogue price, to determine the total cost of the task order. The adjustment factor represents an average percentage increase over the catalogue price (i.e., 1.25 adjustment factor represents 25% above the catalogue price) for that respective task within the project. In order to select the lowest responsive and responsible bidder, MTS staff compares each contractor's proposed adjustment factor.

On March 30, 2022, MTS issued an Invitation for Bids (IFB) seeking a contractor to provide JOC civil construction services that primarily consist of repairs, remodeling, or other repetitive work, as well as general civil and site improvements. These services include, but are not limited to, earthwork, utilities, paving, concrete, drainage, landscaping mitigation, site clearing, and all required incidental professional and technical services.

Three (3) bids were received, and MTS determined that ABCGC was the lowest responsive and responsible bidder. On June 16, 2022, (Agenda Item (AI) 14), the MTS Board authorized the CEO to execute MTS Doc. No. PWG347.0-22 with ABCGC for Civil Construction Services. Today's work order would be issued under this master agreement.

Today's proposed action would issue a work order to ABCGC under their JOC Civil Construction Services master agreement. Pricing for this repair work order was reviewed and determined to be fair and reasonable. ABCGC and its subcontractors will provide all materials, labor, and equipment needed for the following work on the Blue Line South:

- Beyer Boulevard Railroad Overpass Bridge corrosion treatment and paint
- Otay River Bridge relocation of rip-rap and other site improvements
- 24th Street Channel bridge expansion joint maintenance
- 18th St. Overpass anti-bird netting improvements

Work is expected to be completed within 2 months of issuance of the Notice to Proceed.

ABCGC will utilize the following subcontractors for this project:

Subcontractor Name	Subcontractor Certification	Subcontractor Amount
Access Professional Systems	N/A	$10,000.00
C.E. CRIST INC	N/A	$50,000.00

This work order is not subject to the Project Labor Agreement (PLA) approved under Board Policy No. 66 because it is a work order under $1,000,000.00

Therefore, staff recommend that the MTS Board of Directors authorize the CEO to execute Work Order MTSJOC347-48 under MTS Doc. No. PWG347.0-22 (in substantially the same format as Attachment A), with ABCGC, in the amount of $272,030.17 for addressing routine repair, maintenance, and housekeeping items noted during the annual bridge inspection report for Blue Line South.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachment: A. Draft Work Order MTSJOC347-48

Metropolitan Transit System

JOB ORDER CONTRACT
WORK ORDER

PWG347.0-22
CONTRACT NUMBER

MTSJOC347-48
WORK ORDER NUMBER

THIS AGREEMENT is entered into this _____ day of _____ 2026, in the state of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: ABC General Contractor, Inc.

Address: 3120 National Avenue
San Diego, CA 92113

Form of Business: Corporation
(Corporation, partnership, sole proprietor, etc.)

Telephone: (619) 937-1010

Authorized person to sign contracts: Travis Brozowski (Name) President (Title)

Pursuant to the existing Job Order Contract (MTS Doc. No. PWG347.0-22), MTS issues a Work Order to Contractor to complete the detailed Scope of Work (attached hereto as Exhibit A), the Cost Breakdown for the Scope of Work (attached hereto as Exhibit B), and the Subcontractor List form applicable to this Work Order (attached hereto as Exhibit C). Federal terms in accordance with master agreement apply.

TOTAL PAYMENTS TO CONTRACTOR SHALL NOT EXCEED $272,030.17

SAN DIEGO METROPOLITAN TRANSIT SYSTEM	ABC GENERAL CONTRACTOR, INC.
By: _____ Sharon Cooney, Chief Executive Officer	Firm: _____
Approved as to form:	By: _____ Signature
By: _____ Karen Landers, General Counsel	Title: _____

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EXHIBIT A
(Scope of Work)

DRAFT

San Diego Metropolitan Transit System
1255 Imperial Ave
San Diego, California 92101

Final Scope of Work

Date: 6/4/2026

Job Order Contracting

To: Travis Brozowski
ABC General Inc.
3120 National Ave
San Diego, CA 92113
(619) 239-3428
travis@abcgeneralinc.com

From: Jack Canavan
San Diego Metropolitan Transit System
1255 Imperial Ave
San Diego, CA 92101
(619) 557-4576
jack.canavan@sdmts.com

Contract Number: PWG347.0-22

Job Order Number: MTSJOC347-48

Job Order Title: Bridge Maintenance - Blue Line South

Location: See Scope
See Scope See Scope
San Diego, CA 92101

Brief Scope of Work: The scope of this project involves addressing routine repair, maintenance, and housekeeping items generated by the annual bridge inspection report for Blue Line South.

All work will be done in the vicinity of the following Blue Line South bridges: Beyer Blvd Overpass, Otay River Bridge, 24th St Channel, 18th St Overpass.

Schedule - 2 months from NTP.

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The following items detail the scope of work as discussed at the site. All requirements necessary to accomplish the items set forth below shall be considered part of this scope of work.

See detailed scope attached in Scope of Work Documents.

All job orders include the labor, equipment, and material costs for a complete and in-place installation, unless otherwise noted.

Scope of Work
JOC #: MTSJOC347-48
Project: Bridge Maintenance – Blue Line South

General Summary:

The contractor shall complete the construction of this project in its entirety, providing all labor, materials, equipment, and traffic control measures required.

This job involves addressing routine repair, maintenance, and housekeeping items generated by the annual bridge inspection report for Blue Line South. Items include those listed in the detailed scope of work section and in the annual bridge inspection report document.

Staging:

Contractor shall keep and store all materials and equipment within the work area where feasible. Any further staging needs shall be coordinated with MTS. All property stored onsite is the responsibility of the contractor and MTS shall not be held liable for any and all equipment, material, tools, etc.

Temporary Facilities:

The contractor is to provide their own temporary restrooms and wash facilities as needed. Contractor is responsible for temporary power, water, etc. as required.

Safety and Access:

All work shall be performed with due caution and in strict adherence to all applicable safety codes and best practices. All work will be done within the vicinity of the following Blue Line South bridges: Beyer Blvd Overpass, Otay River Bridge, 24th St Channel, 18th St Overpass – including adjacent public streets, buildings, and facilities associated with the scope of work.

The contractor is responsible for coordinating all required Flagperson, Right-of-Way Work, and Red Tag requests with MTS. All work shall be coordinated with designated MTS project staff. Only vehicles necessary for the performance of the work shall be parked within the area of the defined work site.

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Waste:

The contractor is responsible for legally disposing of any and all waste in relation to the work. The contractor shall not use any onsite receptacles to dispose of material generated during the performance of this contract. Contractor is responsible for general cleanup and housekeeping at the end of each workday.

Work Schedule:

All work and installation shall be coordinated around regular MTS service hours and as stated in the detailed scope of work. The work shall commence once all provisions are available and the work can proceed without stoppages or hindrance of any and all associated MTS operations.

Detailed Scope of Work:

Contractor Responsibilities:

- **Mobilization & Permitting:**
  - Coordinate all traffic control measures including daily set-up/tear-down as required, means/methods, and permitting.
  - Obtain all noise permits required to perform the scope of work.
  - Coordinate all Flagperson, Right-of-Way Work, and Red Tag Requests as required to perform the scope of work.
- **Existing Utilities:**
  - The Contractor is responsible for locating and protecting underground and/or embedded facilities, including signal wires, track circuits, lighting cables, and irrigation lines. Coordination with SDTI Maintenance of Way (MOW) personnel is required to mark these facilities. Damaged facilities must be promptly repaired to prevent extended delays to trolley service. Any such delays must be reported to MTS immediately.
- **Protection of Adjacent Facilities**
  - Contractor is responsible for protection from all work-related damage to any and all adjacent buildings, structures, and facilities associated with this work including, but not limited to utilities, facades, windows, building components, sidewalks, public-use areas, landscaping, art installations, etc.

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- **Work Items**
  - Beyer Blvd Overpass
    - Treat and repaint corrosion / flaking paint in multiple areas, including girders, guard rails, and various bridge structure components.
    - Guardrail along the bridge deck to receive a full repaint. Structural components on the underside of the bridge to receive treatment & paint only in affected areas.
    - All affected areas to be treated via cryo-blasting, primed, and repainted with two coats.
    - Work to be performed during daytime hours.
  - Otay River Bridge
    - Relocate excess riprap at abutments to provide greater clearance to the abutment structures and soffits.
    - Excess riprap to be removed and distributed around site / MTS property limits with equipment.
    - Work to be performed during daytime hours.
  - 24th St Channel
    - Remove / replace all loose and failing bridge expansion joint material.
    - Existing expansion joint fiber board to be removed from below via man lift and replaced with an appropriate expansion joint sealant.
    - Contractor to test existing expansion joint material for asbestos before commencing with removal.
    - Work to be performed during nighttime / non-revenue hours.
  - 18th St Overpass
    - Remove / clean all debris from abutment, bridge seat, and bridge bents.
    - Repair any tears in existing anti-bird netting.
    - Add new anti-bird netting to various openings along the topside of bridge. Install sheet metal flashing around openings deemed unfeasible for new anti-bird netting installation.
    - Add zippers to existing anti-bird netting for future ease of maintenance.
    - Work on bridge deck to be performed during nighttime / non-revenue hours. Work on the underside of bridge to be performed during daytime hours.

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Deliverables:

- **Required Submittals:**
  - Traffic control plan
  - Traffic control permit
  - Noise permit
  - Project schedule
  - Bridge primer product data
  - Bridge paint product data
  - Bridge expansion joint sealant product data
  - Asbestos testing lab results
  - Anti-bird netting product data

DRAFT

EXHIBIT B
(Cost Breakdown)

DRAFT

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Division		Install Total	NPP Total	Demo Total	Division Total
01	General Requirements	$145,326.82	$0.00	$0.00	$145,326.82
02	Existing Conditions	$60,579.60	$0.00	$0.00	$60,579.60
05	Metals	$2,681.30	$0.00	$0.00	$2,681.30
07	Thermal And Moisture Protection	$4,036.85	$0.00	$0.00	$4,036.85
10	Specialties	$2,432.52	$0.00	$0.00	$2,432.52
32	Exterior Improvements	$12,379.37	$0.00	$1,913.76	$14,293.13
50	Custom Standards And Assemblies	$42,679.95	$0.00	$0.00	$42,679.95
	Total:	**$270,116.41**	**$0.00**	**$1,913.76**	**$272,030.17**

Line Count: 62 **Proposal Total: $272,030.17**

Total Reflects Filtered Statuses: Added, Clarification Requested, Clarified, Confirmed Removal, Modified, No Change, OverRuled, Rejected, Removed, Retained, System Removal Acknowledged by Contractor, System Removal Acknowledged by Owner, System Removed

The Percentage of Non Pre-Priced on this Proposal: 0.0%

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

---

01 General Requirements **$145,326.82**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
1	012216000004	Reimbursable Fees		2,500.00	$1.00	EA	1.2885	$3,221.25

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: Beyer Blvd
Traffic control Permit estimated 2,500

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total: $3,221.25

Division 01 General Requirements Total: $3,221.25

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
2	012216000004	Reimbursable Fees		0.00	$1.00	EA	1.2885	$0.00

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials No**

User Note: 24th Street Channel
Cal Trans Permit (Not included agency to agency No Cost, if caltrans Charged, a MOD will be needed)

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total: $0.00

Division 01 General Requirements Total: $0.00

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
3	012216000004	Reimbursable Fees		2,500.00	$1.00	EA	1.2885	$3,221.25

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

User Note: 18th Street Overpass
National City Traffic Control Permit

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total: $3,221.25

Division 01 General Requirements Total: $3,221.25

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
4	012216000004	Reimbursable Fees		510.00	$1.00	EA	1.2885	$657.14

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

User Note: Beyer Blvd
Rail Safety Training Class $170 ea person x 3 person for Cryo Company

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total: $657.14

Division 01 General Requirements Total: $657.14

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
5	012216000004	Reimbursable Fees		680.00	$1.00	EA	1.2885	$876.18

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

User Note: 18th street
Rail Safety Training Class $170 ea person x 4 person for bird netting company

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total:	**$876.18**
Division 01 General Requirements Total:	**$876.18**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
6	012216000004	Reimbursable Fees		2,702.20	$1.00	EA	1.2889	$3,482.87

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Clarified,1.4 Clarification Requested,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

Owner Comments: *V:1.2-Either provide invoice from testing agency, or build out with Gordian catalogue items for testing.,V:1.4-Unable to see invoice in Gordian, please forward via email*

Contractor Comments: *V:1.3-See Invoice*

User Note: 24th street
Asbestos Testing and Reporting by Vert

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total:	**$3,482.87**
Division 01 General Requirements Total:	**$3,482.87**

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
7	012216000004	Reimbursable Fees		2,500.00	$1.00	EA	1.2885	$3,221.25

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

Owner Comments: *V:1.4-Proof of city permit required*

Contractor Comments: *V:1.5-Revised notes to say $0.00 included for Caltrans Fees*

User Note: 24th Street
Traffic control Permit estimated 2,500
City AND $0.00 Caltrans Permit Needed

Item Note: Reimbursable Fees will be paid to the contractor for eligible costs as directed by Owner. Insert the appropriate quantity to adjust the base cost to the actual Reimbursable Fee. If there are multiple Reimbursable Fees, list each one separately and add a comment in the "note" block to identify the Reimbursable Fee (e.g. sidewalk closure, road cut, various permits, extended warranty, expedited shipping costs, etc.). A copy of each receipt shall be submitted with the Price Proposal.

Total:	**$3,221.25**
Division 01 General Requirements Total:	**$3,221.25**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
8	012220000027	Laborer		12.00	$74.04	HR	1.2885	$1,144.81

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment No Includes Materials No

User Note: Beyer Blvd
Labor for 4 hr class x 3 guys for Cryo company

Item Note: For tasks not included in the Construction Task Catalog® and as directed by owner only.

Total:	**$1,144.81**
Division 01 General Requirements Total:	**$1,144.81**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
9	012220000027	Laborer		120.00	$74.04	HR	1.2889	$11,451.62

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment No Includes Materials No

User Note: Otay River
3 guys to work with machines to remove inplace rip rap

Item Note: For tasks not included in the Construction Task Catalog® and as directed by owner only.

Total:	**$11,451.62**
Division 01 General Requirements Total:	**$11,451.62**

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
10	012220000027	Laborer		16.00	$74.04	HR	1.2885	$1,526.41

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

User Note: 18th street
Labor for 4 hr class x 4 guys for bird netting company

Item Note: For tasks not included in the Construction Task Catalog® and as directed by owner only.

Total: $1,526.41

Division 01 General Requirements Total: $1,526.41

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
11	012220000027	Laborer		80.00	$74.04	HR	1.2889	$7,634.41

Accepted

History: 1.1 Added,1.2 Removed,1.3 Modified,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

Owner Comments: *V:1.2-Provide backup from operating manual showing this,V:1.4-Laborer can cover traffic control vehicle when needed*

Contractor Comments: *V:1.3-24th street*
Laborer to sit at boom lift while boomed out as it is horizontally out, gravity wont release in this position, will need to be cranked back if failure.
Additionally, safety of crew extended out in bucket

User Note: 24th street
Laborer to sit at boom lift while boomed out as it is horizontally out, gravity wont release in this position, will need to be cranked back if failure.
Additionally, safety of crew extended out in bucket

Item Note: For tasks not included in the Construction Task Catalog® and as directed by owner only.

Total: $7,634.41

Division 01 General Requirements Total: $7,634.41

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
12	012220000033	Painter, Structural Steel		360.00	$69.26	HR	1.2906	$32,179.30

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Clarified,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

Owner Comments: *V:1.2-Clarify 3-week schedule for cryo blasting and painting*

Contractor Comments: *V:1.3-Schedule is:*
1 Week ontop
2 weeks below

User Note: Beyer Blvd
to paint top side 3 guys x 40 hrs (120)
to paint bottom side spot area 3 guys x 80 hrs (240)

Item Note: For tasks not included in the Construction Task Catalog® and as directed by owner only.

Total: $32,179.30

Division 01 General Requirements Total: $32,179.30

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
13	012220000033	For Foreman, Add **MOD: 0001**		180.00	$3.46	HR	1.2906	$803.79

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Clarified,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

Total: $803.79

Division 01 General Requirements Total: $803.79

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
14	012220000043	Sheet Metal Worker		32.00	$80.76	HR	1.2906	$3,335.32

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

User Note: 18th street
2 guy x 2 days to install metal flashing ontop of west rail

Item Note: For tasks not included in the Construction Task Catalog® and as directed by owner only.

Total: $3,335.32

Division 01 General Requirements Total: $3,335.32

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
15	012220000080	Engineer		8.00	$127.50	HR	1.2885	$1,314.27

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

User Note: Beyer Blvd
Design, Draft & Stamp Traffic Control Plans for Submittal to City

Total: $1,314.27

Division 01 General Requirements Total: $1,314.27

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
16	012220000080	Engineer		8.00	$127.50	HR	1.2885	$1,314.27

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

User Note: 18th street
Design, Draft & Stamp Traffic Control Plans for Submittal to City

Total: $1,314.27

Division 01 General Requirements Total: $1,314.27

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
17	012220000080	Engineer		16.00	$127.50	HR	1.2885	$2,628.54

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials No**

User Note: 24th Street
Design, Draft & Stamp Traffic Control Plans for Submittal to Caltrans and City

Total: $2,628.54

Division 01 General Requirements Total: $2,628.54

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
18	012220000084	Flagperson For Traffic Control		80.00	$74.04	HR	1.2889	$7,634.41

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment No Includes Materials No

User Note: Beyer Blvd
2 flagman x 2 week to shift traffic to paint bottom side of bridge

Total: $7,634.41

Division 01 General Requirements Total: $7,634.41

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
19	012223000035	125' Engine Powered, Articulating (Up/Over) Boom Man Lift With Platform		2.00	$4,096.44	WK	1.2889	$10,559.80

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

User Note: 24th Street
2 week to remove and install filler

Total: $10,559.80

Division 01 General Requirements Total: $10,559.80

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
20	012223000068	40' Electric, Scissor Platform Lift		4.00	$925.18	WK	1.2889	$4,769.86

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Clarified,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

Owner Comments: *V:1.2-Clarify 3-week schedule for cryo blasting and painting*

Contractor Comments: *V:1.3-Schedule for Underneath is 1 week per lane*

User Note: Beyer Blvd

Total: $4,769.86

Division 01 General Requirements Total: $4,769.86

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
21	012223000068	40' Electric, Scissor Platform Lift		4.00	$925.18	WK	1.2889	$4,769.86

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street
2 scissor lifts x 2 weeks

Total: $4,769.86

Division 01 General Requirements Total: $4,769.86

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
22	012223000383	3 To 3-3/4 CY Hydraulic Excavator With Full-Time Operator		1.00	$8,748.32	WK	1.2889	$11,275.71

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials Yes**

User Note: Otay River
to move remove inplace rip rap with laborers

Total: $11,275.71

Division 01 General Requirements Total: $11,275.71

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
23	012223000465	3-1/2 CY, 198 HP, Heavy Duty Construction Loader With Full-Time Operator		1.00	$5,803.51	WK	1.2889	$7,480.14

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials Yes**

User Note: Otay River
to move removed rip rap and place in MTS ROW

Total: $7,480.14

Division 01 General Requirements Total: $7,480.14

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
24	012223001301	3 Ton Capacity, 12' To 16' Bed, 4 x 2 Flat Bed Truck With Full-Time Truck Driver		3.00	$726.02	WK	1.2906	$2,811.00

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

Owner Comments: *V:1.2-Clarify 3-week schedule for cryo blasting and painting*

User Note: Beyer Blvd
Cryo Blast Rig for 3 weeks

Total: $2,811.00

Division 01 General Requirements Total: $2,811.00

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
25	012223001301	3 Ton Capacity, 12' To 16' Bed, 4 x 2 Flat Bed Truck With Full-Time Truck Driver		3.00	$726.02	WK	1.2906	$2,811.00

Accepted

History: 1.1 Added,1.2 Modified,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

Owner Comments: *V:1.2-Clarify 3-week schedule for cryo blasting and painting*

User Note: Beyer Blvd
Paint Tool truck, daily mobilization for 3 weeks

Total: $2,811.00

Division 01 General Requirements Total: $2,811.00

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
26	012223001353	Traffic Control Truck With Mounted Impact Attenuator/Crash Cushion And Arrow Board With Full-Time Truck Driver		1.00	$4,835.00	WK	1.2889	$6,231.83

Accepted

History: 1.1 Added,1.2 Modified,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials Yes**

Owner Comments: *V:1.4-Truck is acting as a barrier vehicle, not a shadow vehicle. Our understanding is that this means it does not need to be manned full-time. Provide backup documents from Caltrans stating otherwise.*

Contractor Comments: *V:1.3-truck is man'ne at all times.,V:1.5-Truck is manned at all times*

User Note: 24th street
Sitting at begin of off ramp closure
Truck is manned at all times

Total: $6,231.83

Division 01 General Requirements Total: $6,231.83

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
27	015626000144	Temporary 8' High Chain Link Fence Panels (Portable), Up To 6 Months		20.00	$9.46	LF	1.2889	$243.86

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials Yes**

User Note: 24th street
used at for temp gate entrance at parking lot

Total: $243.86

Division 01 General Requirements Total: $243.86

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
28	017113000002	First 25 Miles, Equipment Delivery, Pickup, Mobilization And Demobilization Using A Rollback Flatbed Truck		2.00	$230.26	EA	1.2889	$593.56

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

User Note: Beyer Blvd
2 scissor lifts

Item Note: Includes loading, tie-down of equipment, delivery of equipment, off loading on site, rigging, dismantling, loading for return and transporting away. For equipment such as trenchers, skid-steer loaders (bobcats), industrial warehouse forklifts, sweepers, scissor platform lifts, telescoping and articulating boom man lifts with up to 40' boom lengths, etc.

Total: $593.56

Division 01 General Requirements Total: $593.56

DRAFT

** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
29	017113000002	First 25 Miles, Equipment Delivery, Pickup, Mobilization And Demobilization Using A Rollback Flatbed Truck		1.00	$230.26	EA	1.2889	$296.78

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment Yes Includes Materials No

User Note: 24th street
Telescoping boom lift

Item Note: Includes loading, tie-down of equipment, delivery of equipment, off loading on site, rigging, dismantling, loading for return and transporting away. For equipment such as trenchers, skid-steer loaders (bobcats), industrial warehouse forklifts, sweepers, scissor platform lifts, telescoping and articulating boom man lifts with up to 40' boom lengths, etc.

Total: $296.78

Division 01 General Requirements Total: $296.78

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
30	017113000002	First 25 Miles, Equipment Delivery, Pickup, Mobilization And Demobilization Using A Rollback Flatbed Truck		20.00	$230.26	EA	1.2889	$5,935.64

Accepted

History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment Yes Includes Materials No

User Note: to move 2 scissor lift every day for 2 week due to no lay down area

Item Note: Includes loading, tie-down of equipment, delivery of equipment, off loading on site, rigging, dismantling, loading for return and transporting away. For equipment such as trenchers, skid-steer loaders (bobcats), industrial warehouse forklifts, sweepers, scissor platform lifts, telescoping and articulating boom man lifts with up to 40' boom lengths, etc.

Total: $5,935.64

Division 01 General Requirements Total: $5,935.64

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
31	017113000004	First 25 Miles, Equipment Delivery, Pickup, Mobilization And Demobilization Using A Tractor Trailer With Up To 53' Bed		2.00	$715.07	EA	1.2889	$1,843.31
Accepted		***History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted***						

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

User Note: Otay River
excavator and loader

Item Note: Includes loading, tie-down of equipment, delivery of equipment, off loading on site, rigging, dismantling, loading for return and transporting away. For equipment such as bulldozers, motor scrapers, hydraulic excavators, gradalls, road graders, loader-backhoes, heavy duty construction loaders, tractors, pavers, rollers, bridge finishers, straight mast construction forklifts, telescoping boom rough terrain construction forklifts, telescoping and articulating boom man lifts with >40' boom lengths, etc.

Total:	**$1,843.31**
Division 01 General Requirements Total:	**$1,843.31**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
32	017419000036	General Refuse		1.00	$44.52	TON	1.2889	$57.38
Accepted		***History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted***						

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street
trash from under bridge

Total:	**$57.38**
Division 01 General Requirements Total:	**$57.38**
02 Existing Conditions	**$60,579.60**

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Price Proposal Detail Report

By Division
Version: 2.0
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
33	028716130005	>2,500 To 10,000 SF Bird Waste Removal, Up To 3" Thickness		1,180.00	$9.20	SF	1.2906	$14,010.75

Accepted

History: 1.3 Added,1.4 Removed,1.5 Modified,1.6 Modified,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment Yes Includes Materials No

Owner Comments: *V:1.4-Bird waste removal not part of scope. Include regular labor hours for trash removal and other activities per scope.*

Contractor Comments: *V:1.5-Added "restricted spaces" Mod. Not sure why quantity was less than Actual (Notes)*

User Note: 18th street
Existing Waste removal from both streets of under bridge, 3700SF (both sides)

Total: $14,010.75

Division 02 Existing Conditions Total: $14,010.75

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
34	028716130005	For Work In Restricted Working Space, Add **MOD: 0041**		1,180.00	$2.76	SF	1.2906	$4,203.23

Accepted

History: 1.3 Added,1.4 Removed,1.5 Modified,1.6 Modified,1.7 Accepted,2.0 Accepted

Includes Labor Yes Includes Equipment Yes Includes Materials No

Total: $4,203.23

Division 02 Existing Conditions Total: $4,203.23

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
35	029050000174	Dry-Ice Blasting System For Emergency Clean-up		30.00	$1,094.21	DAY	1.2906	$42,365.62

Accepted

History: 1.1 Added,1.2 Modified,1.3 Modified,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No Includes Equipment No Includes Materials Yes

Owner Comments: *V:1.2-Provide backup docs for dry-ice blasting line item. Clarify 3-week schedule for cryo blasting and painting*

Contractor Comments: *V:1.3-Went over schedule with Jack*

User Note: Beyer Blvd
Cryo Blasting Top Complete (less Mural) and spot blasting underneath (2 crew/machines) for 15 days (30)

Total: $42,365.62

Division 02 Existing Conditions Total: $42,365.62

05 Metals **$2,681.30**

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By Division
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
36	050519000233	0.15"/0.18" Diameter x 1-7/8" Length, Stud Powder Actuated Anchor		372.00	$1.99	EA	1.2906	$955.41
Accepted		***History: 1.5 Added,1.6 Accepted,1.7 Accepted,2.0 Accepted***						
		Includes Labor Yes	**Includes Equipment Yes**	**Includes Materials Yes**				
		User Note: 18th street Drilling existing metal for bird netting clip attachment (1) 2'x120' = 244 clips (8) 2'x2 = 128 372 Total						
							Total:	**$955.41**
							Division 05 Metals Total:	**$955.41**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
37	050519000233	0.15"/0.18" Diameter x 1-7/8" Length, Stud Powder Actuated Anchor		672.00	$1.99	EA	1.2906	$1,725.89
Accepted		***History: 1.5 Added,1.6 Accepted,1.7 Accepted,2.0 Accepted***						
		Includes Labor Yes	**Includes Equipment Yes**	**Includes Materials Yes**				
		User Note: 18th street Drilling existing bridge metal for new flashing installation on Western bridge Rails (4), 84 pieces x 4 screws each (336) Drilling metal flashing before installation on Western bridge Rails (4), 84 pieces x 4 screws each (336) Total 672						
							Total:	**$1,725.89**
							Division 05 Metals Total:	**$1,725.89**

07 Thermal And Moisture Protection **$4,036.85**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
38	076213000034	20 Gauge, 0.04" Thick, Galvanized Steel Flashing		84.00	$10.63	SF	1.2906	$1,152.40
Accepted		***History: 1.5 Added,1.6 Accepted,1.7 Accepted,2.0 Accepted***						
		Includes Labor Yes	**Includes Equipment Yes**	**Includes Materials Yes**				
		User Note: 18th street installation on Western bridge Rails (4), 84 pieces						
							Total:	**$1,152.40**
							Division 07 Thermal And Moisture Protection Total:	**$1,152.40**

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By Division
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
39	076213000034	For Wrap Around Window Panning, Add MOD: 0080		84.00	$6.37	SF	1.2906	$690.57
Accepted		***History: 1.5 Added,1.6 Accepted,1.7 Accepted,2.0 Accepted***						
		Includes Labor Yes	**Includes Equipment Yes**	**Includes Materials No**				
		User Note: Cutting small pieces around 84 supports						
							Total:	**$690.57**
							Division 07 Thermal And Moisture Protection Total:	**$690.57**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
40	076213000034	For Up To 100, Add MOD: 0001		84.00	$2.66	SF	1.2906	$288.37
Accepted		***History: 1.5 Added,1.6 Accepted,1.7 Accepted,2.0 Accepted***						
		Includes Labor Yes	**Includes Equipment Yes**	**Includes Materials Yes**				
		User Note: Cutting small pieces around 84 supports						
							Total:	**$288.37**
							Division 07 Thermal And Moisture Protection Total:	**$288.37**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
41	079123000009	1-1/4" Polyethylene Or Polyurethane Backer Rod		640.00	$2.31	LF	1.2889	$1,905.51
Accepted		***History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted***						
		Includes Labor Yes	**Includes Equipment Yes**	**Includes Materials Yes**				
		User Note: 24th street						
							Total:	**$1,905.51**
							Division 07 Thermal And Moisture Protection Total:	**$1,905.51**
10 Specialties								**$2,432.52**

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Price Proposal Detail Report

By Division
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
42	108113000019	1/8" x 1/8" Mesh Flexible Polypropylene Netting		368.00	$0.71	SF	1.2906	$337.21

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street
New bird netting
(1) 2'x120' = 240SF
(8) 2'x2 = 128SF
368SF Total

Item Note: To control bird and marine predators.

Total:	**$337.21**
Division 10 Specialties Total:	**$337.21**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
43	108113000030	Poly Clips For Flexible Netting		572.00	$2.38	EA	1.2906	$1,756.97

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials Yes**

User Note: 18th street
bird netting clip attachment
(1) 2'x120' = 244 clips
(8) 2'x2 = 128 clips
(10) 10' Zippers = 200 clips
572 Total

Total:	**$1,756.97**
Division 10 Specialties Total:	**$1,756.97**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
44	108113000032	2' Zipper For Flexible Netting		50.00	$5.25	EA	1.2889	$338.34

Accepted

History: 1.3 Added,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street
New Zippers to existing nets, 100' of zippers

Total:	**$338.34**
Division 10 Specialties Total:	**$338.34**

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Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

32 Exterior Improvements **$14,293.13**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
45	321373190007	1-1/2" x 1/2" Expansion And Contraction Silicone Joint Sealant For Concrete Pavement		640.00	$14.24	LF	1.2889	$11,746.52
Accepted		***History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted***	**Demo:**	640.00	$2.32	LF	1.2889	$1,913.76

Includes Labor Yes **Includes Equipment Yes** **Includes Materials Yes**

User Note: 24th street
20 cracks per side, will need top and bottom Siliconced
(Est 16'each x40 locations)

Total: **$13,660.28**

Division 32 Exterior Improvements Total: **$13,660.28**

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
46	323113130800	Removal And Reinstallation Of Chain Link Fence 6' To 12' Height		20.00	$24.55	LF	1.2889	$632.85
Accepted		***History: 1.1 Added,1.2 Accepted,1.3 Accepted,1.4 Accepted,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted***						

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

User Note: 24th street
at parking lot to make temp entrance

Total: **$632.85**

Division 32 Exterior Improvements Total: **$632.85**

50 Custom Standards And Assemblies **$42,679.95**

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Price Proposal Detail Report

By Division
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
47	508982120001	CALTRANS 120110 FLASHING ARROW SIGN		5.00	$57.81	EA	1.2889	$372.56

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Provide backup for CalTrans traffic control items pricing*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: 24th street
1 each x 5 days to close turn lane on off ramp

Total: $372.56

Division 50 Custom Standards And Assemblies Total: $372.56

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
48	508982120001	CALTRANS 120110 FLASHING ARROW SIGN		20.00	$57.81	EA	1.2889	$1,490.23

Accepted

History: 1.1 Added,1.2 Removed,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Price traffic control items from standard Div 01 catalogue. Not CalTrans.*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: 18th street
18th street 2 each x 2 weeks for lane closure

Total: $1,490.23

Division 50 Custom Standards And Assemblies Total: $1,490.23

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
49	508982120001	CALTRANS 120110 FLASHING ARROW SIGN		1.00	$845.96	EA	1.2889	$1,090.36

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 24th St - Material Only

Total: $1,090.36

Division 50 Custom Standards And Assemblies Total: $1,090.36

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Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
50	508982120001	CALTRANS 120110 FLASHING ARROW SIGN		1.00	$845.96	EA	1.2889	$1,090.36

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street - Material only

Total: $1,090.36

Division 50 Custom Standards And Assemblies Total: $1,090.36

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
51	508982120002	CALTRANS 120116 TYPE II BARRICADE		120.00	$6.17	EA	1.2889	$954.30

Accepted

History: 1.1 Added,1.2 Removed,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Price traffic control items from standard Div 01 catalogue. Not CalTrans.*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: Beyer Blvd
12 barricades x 10 days

Total: $954.30

Division 50 Custom Standards And Assemblies Total: $954.30

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
52	508982120002	CALTRANS 120116 TYPE II BARRICADE		160.00	$6.17	EA	1.2889	$1,272.40

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Provide backup for CalTrans traffic control items pricing*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: 24th street
32 each x 5 day to close turn lane on off ramp

Total: $1,272.40

Division 50 Custom Standards And Assemblies Total: $1,272.40

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Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
53	508982120002	CALTRANS 120116 TYPE II BARRICADE		120.00	$6.17	EA	1.2889	$954.30

Accepted

History: 1.1 Added,1.2 Removed,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Price traffic control items from standard Div 01 catalogue. Not CalTrans.*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: 18th street
12 each x 2 weeks for lane closures

Total: $954.30

Division 50 Custom Standards And Assemblies Total: $954.30

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
54	508982120002	CALTRANS 120116 TYPE II BARRICADE		32.00	$21.25	EA	1.2889	$876.45

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 24th St - Material only

Total: $876.45

Division 50 Custom Standards And Assemblies Total: $876.45

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
55	508982120002	CALTRANS 120116 TYPE II BARRICADE		12.00	$21.25	EA	1.2889	$328.67

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: Beyer Blvd - Material only

Total: $328.67

Division 50 Custom Standards And Assemblies Total: $328.67

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Price Proposal Detail Report

By Division
Version: 2.0
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
56	508982120002	CALTRANS 120116 TYPE II BARRICADE		12.00	$21.25	EA	1.2889	$328.67

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street - Material only

Total: $328.67

Division 50 Custom Standards And Assemblies Total: $328.67

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
57	508982120012	CALTRANS 120182 PORTABLE DELINEATOR		1,200.00	$5.17	EA	1.2889	$7,996.34

Accepted

History: 1.1 Added,1.2 Removed,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Price traffic control items from standard Div 01 catalogue. Not CalTrans.*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: Beyer Blvd
120 delineators x 10 days

Total: $7,996.34

Division 50 Custom Standards And Assemblies Total: $7,996.34

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
58	508982120012	CALTRANS 120182 PORTABLE DELINEATOR		1,650.00	$5.17	EA	1.2889	$10,994.96

Accepted

History: 1.1 Added,1.2 Clarification Requested,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Provide backup for CalTrans traffic control items pricing*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: 24th street
330 each x 5 day to close turn lane on off ramp

Total: $10,994.96

Division 50 Custom Standards And Assemblies Total: $10,994.96

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Price Proposal Detail Report

By Division
Version: 2.0
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Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
59	508982120012	CALTRANS 120182 PORTABLE DELINEATOR		1,100.00	$5.17	EA	1.2889	$7,329.97

Accepted

History: 1.1 Added,1.2 Removed,1.3 Modified,1.4 Modified,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor Yes **Includes Equipment Yes** **Includes Materials No**

Owner Comments: *V:1.2-Price traffic control items from standard Div 01 catalogue. Not CalTrans.*

Contractor Comments: *V:1.3-Changed to an Allowance - Actually will be delta'd into MOD/CO*

User Note: 18th street
110 each x 2 weeks for lane closures

Total: $7,329.97

Division 50 Custom Standards And Assemblies Total: $7,329.97

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
60	508982120012	CALTRANS 120182 PORTABLE DELINEATOR		120.00	$10.53	EA	1.2889	$1,628.65

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: Beyer Blvd - Material only

Total: $1,628.65

Division 50 Custom Standards And Assemblies Total: $1,628.65

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
61	508982120012	CALTRANS 120182 PORTABLE DELINEATOR		330.00	$10.53	EA	1.2889	$4,478.80

Accepted

History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 24th St - Material only

Total: $4,478.80

Division 50 Custom Standards And Assemblies Total: $4,478.80

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** Includes Price Changes due to Construction Task Catalog update*

Price Proposal Detail Report

By Division
Version: 2.0
Approved
Proposal Value: $272,030.17
Approved Date: June 4, 2026

Catalog: 2020 - SDMTS, General Building and Facilities Construction Services

Job Order: MTSJOC347-48

Job Order Name: Bridge Maintenance - Blue Line South

Location: See Scope See Scope San Diego, CA 92101

Contractor: ABC General Inc.
Contract Number: PWG347.0-22
Contract Name: JOC CIVIL CONSTRUCTION SERVICES - Option 3

Record #	CSI Number	Description	Type	Quantity	Unit Price	UOM	Factor	Line Total
62	508982120012	CALTRANS 120182 PORTABLE DELINEATOR		110.00	$10.53	EA	1.2889	$1,492.93
Accepted		***History: 1.4 Added,1.5 Modified,1.6 Accepted,1.7 Accepted,2.0 Accepted***						

Includes Labor No **Includes Equipment No** **Includes Materials Yes**

User Note: 18th street - Material only

Total:	**$1,492.93**
Division 50 Custom Standards And Assemblies Total:	**$1,492.93**
Proposal Total:	**$272,030.17**
Div **The Percentage of Non Pre-Priced on this Proposal:**	**0.0%**

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** Includes Price Changes due to Construction Task Catalog update*

EXHIBIT C
(Subcontractor Listing)

DRAFT

San Diego Metropolitan Transit System
1255 Imperial Ave
San Diego, CA 92101

Subcontractor Report

Date: 6/4/2026

Job Order Contracting

Contract #: PWG347.0-22

Job Order #: MTSJOC347-48

Job Order Title: Bridge Maintenance - Blue Line South

Job Order Value: $272,030.17

Location: See Scope

Contractor: ABC General Inc.

Subcontractors: Access Professional Systems

C.E. CRIST INC

Subcontractor Name	License Number	Describe Nature of Work (Trade)	Certifications	Subcontractor Total	Participation %
Access Professional Systems 1955 Cordell Ct, El Cajon, CA 92020	430971	Fence Repairs	No Certification	$10,000.00	3.68%
C.E. CRIST INC 11213 El Nopal, Lakeside, CA 92040	532947	Carpenter	No Certification	$50,000.00	18.38%

Summary

Certification Name	Value	% Subcontracted
No Certification	$60,000.00	22.06%
Total	**$60,000.00**	**22.06%**

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Metropolitan Transit System

Agenda Item No. 10

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

SAP S/4HANA Cloud Licensing – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3235.0-26 (in substantially the same format as Attachment A) with Carahsoft Software Corp. (Carahsoft), in the amount of $9,975,331.96 for SAP S/4HANA software licensing subscriptions for five (5) years.

Budget Impact

The total cost of this contract is estimated to be $9,975,331.96. This project will be funded by the Information Technology (IT) Operations Budget account 661010-234000.

Description	Amount
Year 1	$2,197,410.57
Year 2	$2,557,809.61
Year 3	$2,527,037.26
Year 4	$2,527,037.26
Year 5	$2,527,037.26
Transformation Incentive Phase 1	($1,180,500.00)
Transformation Incentive Phase 2	($1,180,500.00)
Total	**$9,975,331.96**

DISCUSSION:

On July 17, 2014 (Agenda Item (AI) 30), the MTS Board of Directors approved a 10-year contract award to SAP Public Services, Inc. (SAP) following a competitive solicitation for the provision of software, training and support services for their Enterprise Resource Planning (ERP) and Transit Asset Management (TAM) platform. This solution integrated and centralized several outdated legacy systems that were installed prior to the consolidation of MTS in 2003. Since SAP's implementation in 2015, SAP has been one of the agency's most critical business systems. It is used throughout the organization to provide financial, budgetary, inventory and asset management, customer relationship management, and reporting business functions.

The existing system has served MTS well; however, the software is reaching its end of life and needs to be upgraded.

On December 19, 2024 (AI 15), the Board approved a two-year extension of the SAP ERP and TAM licensing support, with a new expiration date of December 31, 2026. The extension was intended to allow staff to prepare for the anticipated end of life of the SAP modules being used by MTS, and a transition to updated cloud-based software.

As anticipated, SAP announced that standard support for the current SAP ERP ECC6 platform will end on December 31, 2027. Continuing to operate the system beyond this date would expose MTS to significant risks, including the loss of vendor support, increased security vulnerabilities, and limited access to future enhancements. End of mainstream maintenance for other core components of MTS's SAP ecosystem include:

- SAP Business Warehouse (BW) – End of Life (EOL): December 31, 2027
- SAP Budgeting and Planning (SBP) – EOL: December 31, 2027
- SAP Customer Relationship Management (CRM) – EOL: December 31, 2027
- SAP Work Manager (Mobility) – EOL: December 31, 2024

In response, staff has recommended transitioning to SAP's S/4HANA 2025 environment in RISE Private Cloud Edition. This modernization initiative will ensure compatibility, security, compliance, system optimization, and business continuity while leveraging the latest SAP technologies.

Staff determined that an upgrade of the SAP environment, as opposed to a competitive solicitation for an entirely new ERP solution was the most cost-effective solution with the least likelihood of significantly disrupting MTS's day-to-day operations. The initial SAP implementation was a multi-year effort to procure, customize, train and ultimately launch the new systems. SAP was chosen because it was the only solution to offer an integrated ERP system, for the financial, procurement and workflow modules, as well as an enterprise asset management (EAM) system, for bus, light rail vehicles, infrastructure and facility maintenance. The ultimate cost for this implementation was $9.8 million. Based on inflation since that time, it is estimated the cost to do a new ERP/EAM implementation would be $14-18 million, which would again take multiple years and also would not guarantee that SAP would not be the chosen solution again. From a cost perspective as well as the level of effort needed to procure, customize, train and implement a new system, it is more effective to upgrade the current solution to the latest version of the system.

On May 21, 2026 (AI 10), the Board approved a contract with Sierra Digital, Inc. to provide SAP S/4HANA conversion and migration professional services to assist MTS staff in transferring all data and processes over from the legacy SAP platforms implemented in 2015 to the new cloud-based solution, SAP S/4HANA.

Today's proposed action relates to purchasing the new cloud-based licensing for the SAP S/4HANA platform. In order to identify the most efficient and cost-effective procurement method to acquire the required licensing, MTS staff researched potential Cooperative Purchasing agreements that have been competitively bid by the United States General Services Administration (GSA), which allow local agencies like MTS to leverage the federal government's economies of scale to purchase products and services from IT vendors that have been vetted through a solicitation process with competitive pricing.

MTS identified the General Services Administration (GSA) Multiple Award Schedule contract number 47QSWA18D008F with Carahsoft, the schedule's only pre-approved SAP software reseller.

On May 20, 2026, staff MTS requested a quote from Carahsoft for the software licensing subscriptions. On May 29, 2026, Carahsoft provided a quote in the amount of $9,975,331.96. On June 2, 2026, staff requested a price reduction in the quote. However, Carahsoft was unwilling to reduce their initial price. In addition, staff conducted market research and analyzed publicly available retail pricing listed on the GSA Advantage website, as well as the price other agencies paid for the same licensing as a basis for the Independent Cost Estimate (ICE). Based on a comparison to the ICE, an analysis of available price information, and the economies of scale from the GSA agreement, the final negotiated firm/fixed price of $9,975,331.96 is deemed to be fair and reasonable.

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute MTS Doc. No. G3235.0-26 (in substantially the same format as Attachment A) with Carahsoft, in the amount of $9,975,331.96 for SAP S/4HANA software licensing subscriptions for five (5) years.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. Draft Agreement G3235.0-26
B. Carahsoft Quote

Metropolitan Transit System

STANDARD AGREEMENT

FOR

MTS DOC. NO. G3235.0-26

SAP S/4 HANA LICENSING

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: Carahsoft Technology Corp. Address: 11493 Sunset Hills Road

Reston VA 20190-5357
City State Zip

Form of Business: Corporation
(Corporation, Partnership, Sole Proprietor, etc.)

Email: brian.reshore@carahsoft.com

Telephone: (703) 871-8500

Authorized person to sign contracts Brain ReShore Sales Operations Specialist
Name Title

The Contractor agrees to provide services with goods as specified in the General Services Administration (GSA) Multiple Award Schedule contract number 47QSWA18D008F special item number (SIN) 518210 incorporated by reference, Contractor's Cost/Pricing Form (Exhibit A), and in accordance with the Standard Agreement, including Standard Conditions (Exhibit B), and Forms (Exhibit C).

Order of Precedence:

1. Carahsoft GSA Multiple Award Schedule Contract #47QSWA18D008F
2. San Diego Metropolitan Transit System Standard Agreement
3. Carahsoft Quote #65074595

The contract term is for five (5) years, effective August 1, 2026 through July 31, 2031.

Payment terms shall be net 30 days from the invoice date. The total cost of this contract shall not exceed $9,975,331.96 without the express written consent of MTS.

[Signatures on following page]

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM	CARAHSOFT TECHNOLOGY CORP.
By: _____ Sharon Cooney, Chief Executive Officer	By _____
Approved as to form:	
By: _____ Karen Landers, General Counsel	Title: _____

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GOVERNMENT - PRICE QUOTATION

SAP GOVERNMENT AT CARAHSOFT

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WWW.CARAHSOFT.COM | SAP@CARAHSOFT.COM

TO: Justin Plaetzler
Procurement Specialist
San Diego Metropolitan Transit System
1255 Imperial Ave
San Diego, CA 92101 USA

EMAIL: justin.plaetzler@sdmts.com

PHONE: (619) 557-4596

FROM: Jonathan Gutierrez
Carahsoft Technology Corp.
11493 Sunset Hills Road
Suite 100
Reston, Virginia 20190

EMAIL: Jonathan.Gutierrez@carahsoft.com

PHONE: (571) 662-3375 **FAX:** (703) 871-8505

TERMS:
GSA Schedule No: 47QSWA18D008F
Term: August 22, 2018 - August 21, 2028
FTIN: 52-2189693
Shipping Point: FOB Destination
Credit Cards: VISA/MasterCard/AMEX
Remit To: Same as Above
Payment Terms: Net 30 (On Approved Credit)
Cage Code: 1P3C5
DUNS No: 088365767
UEI: DT8KJHZXVJH5
Business Size: Other than Small
Sales Tax May Apply

QUOTE NO:	65074595
QUOTE DATE:	05/29/2026
QUOTE EXPIRES:	06/30/2026
RFQ NO:	
SHIPPING:	ESD
TOTAL PRICE:	$2,197,410.57
TOTAL QUOTE:	$2,197,410.57

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
		SERVICES					
1	50167316	Transform.prep.serv.f. SAP Business Ste. SAP Industries, Inc. - 50167316 Start Date: 08/01/2026 Reference ID: 3063598699		$0.00	OM	1	$0.00
		SERVICES SUBTOTAL:					$0.00
		BASE YEAR					
2	8019361-551-750-611	SAP Cloud ERP Private (551-750 Tier; Block Of 1 Full Use Equivalent; Minimum of 60 Block; Per Year) SAP Industries, Inc. - 8019361-551-750 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$3,228.2100	$1,633.8400	GSA	733	$1,197,604.72
3	8008411-611	SAP Integration Suite, standard edition (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008411 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$57,688.14	$39,474.43	GSA	3	$118,423.29
4	8008690-611	SAP S/4HANA Cloud, additional non-productive tier, private edition (S) (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008690 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$246,506.24	$124,426.29	GSA	1	$124,426.29

GOVERNMENT - PRICE QUOTATION

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WWW.CARAHSOFT.COM | SAP@CARAHSOFT.COM

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
5	8008794-611	SAP Additional File Storage, private cloud edition (1-Infinite Tier; Block Of 128 Gigabyte; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008794 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$2,173.6600	$1,078.3200	GSA	12	$12,939.84
6	8013668-1-2-611	SAP Document and Reporting Compliance for SAP S/4HANA Cloud Private Edition (1-2 Tier; Block Of 1 Object; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8013668-1-2 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$11,062.01	$5,737.47	GSA	1	$5,737.47
7	8014871-1-20-611	SAP S/4HANA Cloud for receivables management, private edition (1-20 Tier; Block Of 115660000 Revenue; Minimum of 5 Block(s); Per Year) SAP Industries, Inc. - 8014871-1-20 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$3,916.9000	$2,039.3400	GSA	5	$10,196.70
8	8015461-1-6-611	SAP Secure Login Service for SAP GUI (1-6 Tier; Block Of 500 User; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8015461-1-6 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$5,595.57	$3,760.15	GSA	1	$3,760.15
9	8018603-1-Infinite-611	SAP Cloud ALM, tenant extension (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8018603-1-Infinite Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$24,889.51	$18,505.44	GSA	1	$18,505.44
10	8019709-1-Infinite-611	Customer-Managed Data Products (1-Infinite Tier; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019709-1-Infinite Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$18,669.82	$12,885.42	GSA	1	$12,885.42
11	8020297-1-100-611	SAP S/4HANA Cloud, Digital Access, private edition (1-100 Tier; Block Of 1000 Document; Minimum of 10 Block(s); Per Year) SAP Industries, Inc. - 8020297-1-100 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$118.3700	$60.7200	GSA	10	$607.20
12	8020745-1-500-611	SAP Ariba Sourcing and Procurement for Public Sector in SAP S/4HANA Cloud Private Edition (1-500 Tier; Block Of 10000000 Spend; Minimum of 75 Block(s); Per Year) SAP Industries, Inc. - 8020745-1-500 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$6,710.2000	$3,133.1900	GSA	75	$234,989.25

GOVERNMENT - PRICE QUOTATION

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LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
13	8017178-1-Infinite	SAP Joule embedded entitlement (1-Infinite Tier; Block of 1 Transaction; Per Month; $0.01 is not the customer's final price. Price available upon request, please contact Carahsoft Technology Corp.) SAP Industries, Inc. - 8017178-1-Infinite Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553		$0.00	OM	26	$0.00
14	8019271-1-infinite-611	SAP Business Data Cloud, core capacity (1-Infinite Tier; Block Of 1 Capacity Unit; Minimum of 640 Block; Per Year) SAP Industries, Inc. - 8019271-1-infinite Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$12.4800	$8.6300	GSA	36,000	$310,680.00
15	8019676-1001-2500-611	WalkMe Premium for SAP S/4HANA Private Cloud Edition (1001-2500 Tier; Block Of 1 Active User; Minimum of 500 Block(s); Per Year) SAP Industries, Inc. - 8019676-1001-2500 Start Date: 08/01/2026 End Date: 07/31/2027 Reference ID: 3063598699 ERP ID: 1012553	$93.9400	$45.9400	GSA	1,300	$59,722.00
16	8019164-1-Infinite-611	SAP AI Unit (1-Infinite Tier; Block Of 100 Capacity Unit; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019164-1-Infinite Start Date: 07/01/2026 End Date: 06/30/2027 Reference ID: 3063598699 ERP ID: 1012553	$726.3500	$362.2200	GSA	240	$86,932.80
		BASE YEAR SUBTOTAL:					$2,197,410.57
		SUBTOTAL:					$2,197,410.57

SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
		OPTION YEAR 1					
17	8019361-551-750-611	SAP Cloud ERP Private (551-750 Tier; Block Of 1 Full Use Equivalent; Minimum of 60 Block; Per Year) SAP Industries, Inc. - 8019361-551-750 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$3,228.2100	$1,633.8500	GSA	733	$1,197,612.05
18	8008411-611	SAP Integration Suite, standard edition (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008411 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$57,688.14	$39,474.43	GSA	3	$118,423.29

GOVERNMENT - PRICE QUOTATION

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
19	8008675-611	SAP S/4HANA Cloud, disaster recovery, private edition (1-Infinite Tier; 17% of Net Recurring; Per Year; The published $0.01 price is not the Customer's final price. The purchase price of the support is based on a Commercial List Price that is 17% of the SAP Industries, Inc. - 8008675 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$0.01	$246,353.83	GSA	1	$246,353.83
20	8008690-611	SAP S/4HANA Cloud, additional non-productive tier, private edition (S) (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008690 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$246,506.24	$124,426.29	GSA	1	$124,426.29
21	8008794-611	SAP Additional File Storage, private cloud edition (1-Infinite Tier; Block Of 128 Gigabyte; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008794 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$2,173.6600	$1,078.3200	GSA	12	$12,939.84
22	8009319-611	SAP IaaS server Linux Cloud, private edition (128GB) (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8009319 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$35,951.52	$17,832.51	GSA	1	$17,832.51
23	8012580-1-Infinite-611	SAP Sales Cloud and SAP Service Cloud Version 2, test tenant (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8012580-1-Infinite Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$25,330.70	$13,501.77	GSA	1	$13,501.77
24	8013668-1-2-611	SAP Document and Reporting Compliance for SAP S/4HANA Cloud Private Edition (1-2 Tier; Block Of 1 Object; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8013668-1-2 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$11,062.01	$5,737.47	GSA	1	$5,737.47
25	8014871-1-20-611	SAP S/4HANA Cloud for receivables management, private edition (1-20 Tier; Block Of 115660000 Revenue; Minimum of 5 Block(s); Per Year) SAP Industries, Inc. - 8014871-1-20 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$3,916.9000	$2,039.3400	GSA	5	$10,196.70

GOVERNMENT - PRICE QUOTATION

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
26	8015461-1-6-611	SAP Secure Login Service for SAP GUI (1-6 Tier; Block Of 500 User; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8015461-1-6 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$5,595.57	$3,760.15	GSA	1	$3,760.15
27	8018603-1-Infinite-611	SAP Cloud ALM, tenant extension (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8018603-1-Infinite Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$24,889.51	$18,505.44	GSA	1	$18,505.44
28	8019709-1-Infinite-611	Customer-Managed Data Products (1-Infinite Tier; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019709-1-Infinite Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$18,669.82	$12,885.42	GSA	1	$12,885.42
29	8019742-101-250-611	SAP Service Cloud Version 2 (101-250 Tier; Block Of 1 User; Minimum of 10 Block; Per Year) SAP Industries, Inc. - 8019742-101-250 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$1,140.6300	$590.7400	GSA	140	$82,703.60
30	8020297-1-100-611	SAP S/4HANA Cloud, Digital Access, private edition (1-100 Tier; Block Of 1000 Document; Minimum of 10 Block(s); Per Year) SAP Industries, Inc. - 8020297-1-100 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$118.3700	$60.7200	GSA	10	$607.20
31	8020745-1-500-611	SAP Ariba Sourcing and Procurement for Public Sector in SAP S/4HANA Cloud Private Edition (1-500 Tier; Block Of 10000000 Spend; Minimum of 75 Block(s); Per Year) SAP Industries, Inc. - 8020745-1-500 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$6,710.2000	$3,133.1900	GSA	75	$234,989.25
32	8017178-1-Infinite	SAP Joule embedded entitlement (1-Infinite Tier; Block of 1 Transaction; Per Month; $0.01 is not the customer's final price. Price available upon request, please contact Carahsoft Technology Corp.) SAP Industries, Inc. - 8017178-1-Infinite Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553		$0.00	OM	26	$0.00

GOVERNMENT - PRICE QUOTATION

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
33	8019271-1-infinite-611	SAP Business Data Cloud, core capacity (1-Infinite Tier; Block Of 1 Capacity Unit; Minimum of 640 Block; Per Year) SAP Industries, Inc. - 8019271-1-infinite Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$12.4800	$8.6300	GSA	36,000	$310,680.00
34	8019676-1001-2500-611	WalkMe Premium for SAP S/4HANA Private Cloud Edition (1001-2500 Tier; Block Of 1 Active User; Minimum of 500 Block(s); Per Year) SAP Industries, Inc. - 8019676-1001-2500 Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$93.9400	$45.9400	GSA	1,300	$59,722.00
35	8019164-1-Infinite-611	SAP AI Unit (1-Infinite Tier; Block Of 100 Capacity Unit; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019164-1-Infinite Start Date: 08/01/2027 End Date: 07/31/2028 Reference ID: 3063598699 ERP ID: 1012553	$726.3500	$362.2200	GSA	240	$86,932.80
		OPTION YEAR 1 SUBTOTAL:					$2,557,809.61
		OPTION YEAR 2					
36	8019361-551-750-611	SAP Cloud ERP Private (551-750 Tier; Block Of 1 Full Use Equivalent; Minimum of 60 Block; Per Year) SAP Industries, Inc. - 8019361-551-750 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$3,228.2100	$1,633.8500	GSA	733	$1,197,612.05
37	8008411-611	SAP Integration Suite, standard edition (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008411 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$57,688.14	$39,474.43	GSA	3	$118,423.29
38	8008675-611	SAP S/4HANA Cloud, disaster recovery, private edition (1-Infinite Tier; 17% of Net Recurring; Per Year; The published $0.01 price is not the Customer's final price. The purchase price of the support is based on a Commercial List Price that is 17% of the SAP Industries, Inc. - 8008675 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$0.01	$246,353.83	GSA	1	$246,353.83

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
39	8008690-611	SAP S/4HANA Cloud, additional non-productive tier, private edition (S) (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008690 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$246,506.24	$124,426.29	GSA	1	$124,426.29
40	8012580-1-Infinite-611	SAP Sales Cloud and SAP Service Cloud Version 2, test tenant (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8012580-1-Infinite Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$25,330.70	$13,501.77	GSA	1	$13,501.77
41	8013668-1-2-611	SAP Document and Reporting Compliance for SAP S/4HANA Cloud Private Edition (1-2 Tier; Block Of 1 Object; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8013668-1-2 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$11,062.01	$5,737.47	GSA	1	$5,737.47
42	8014871-1-20-611	SAP S/4HANA Cloud for receivables management, private edition (1-20 Tier; Block Of 115660000 Revenue; Minimum of 5 Block(s); Per Year) SAP Industries, Inc. - 8014871-1-20 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$3,916.9000	$2,039.3400	GSA	5	$10,196.70
43	8015461-1-6-611	SAP Secure Login Service for SAP GUI (1-6 Tier; Block Of 500 User; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8015461-1-6 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$5,595.57	$3,760.15	GSA	1	$3,760.15
44	8018603-1-Infinite-611	SAP Cloud ALM, tenant extension (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8018603-1-Infinite Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$24,889.51	$18,505.44	GSA	1	$18,505.44
45	8019709-1-Infinite-611	Customer-Managed Data Products (1-Infinite Tier; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019709-1-Infinite Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$18,669.82	$12,885.42	GSA	1	$12,885.42
46	8019742-101-250-611	SAP Service Cloud Version 2 (101-250 Tier; Block Of 1 User; Minimum of 10 Block; Per Year) SAP Industries, Inc. - 8019742-101-250 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$1,140.6300	$590.7400	GSA	140	$82,703.60

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
47	8020297-1-100-611	SAP S/4HANA Cloud, Digital Access, private edition (1-100 Tier; Block Of 1000 Document; Minimum of 10 Block(s); Per Year) SAP Industries, Inc. - 8020297-1-100 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$118.3700	$60.7200	GSA	10	$607.20
48	8020745-1-500-611	SAP Ariba Sourcing and Procurement for Public Sector in SAP S/4HANA Cloud Private Edition (1-500 Tier; Block Of 10000000 Spend; Minimum of 75 Block(s); Per Year) SAP Industries, Inc. - 8020745-1-500 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$6,710.2000	$3,133.1900	GSA	75	$234,989.25
49	8017178-1-Infinite	SAP Joule embedded entitlement (1-Infinite Tier; Block of 1 Transaction; Per Month; $0.01 is not the customer's final price. Price available upon request, please contact Carahsoft Technology Corp.) SAP Industries, Inc. - 8017178-1-Infinite Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553		$0.00	OM	26	$0.00
50	8019271-1-infinite-611	SAP Business Data Cloud, core capacity (1-Infinite Tier; Block Of 1 Capacity Unit; Minimum of 640 Block; Per Year) SAP Industries, Inc. - 8019271-1-infinite Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$12.4800	$8.6300	GSA	36,000	$310,680.00
51	8019676-1001-2500-611	WalkMe Premium for SAP S/4HANA Private Cloud Edition (1001-2500 Tier; Block Of 1 Active User; Minimum of 500 Block(s); Per Year) SAP Industries, Inc. - 8019676-1001-2500 Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$93.9400	$45.9400	GSA	1,300	$59,722.00
52	8019164-1-Infinite-611	SAP AI Unit (1-Infinite Tier; Block Of 100 Capacity Unit; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019164-1-Infinite Start Date: 08/01/2028 End Date: 07/31/2029 Reference ID: 3063598699 ERP ID: 1012553	$726.3500	$362.2200	GSA	240	$86,932.80
		OPTION YEAR 2 SUBTOTAL:					$2,527,037.26

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
		OPTION YEAR 3					
53	8019361-551-750-611	SAP Cloud ERP Private (551-750 Tier; Block Of 1 Full Use Equivalent; Minimum of 60 Block; Per Year) SAP Industries, Inc. - 8019361-551-750 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$3,228.2100	$1,633.8500	GSA	733	$1,197,612.05
54	8008411-611	SAP Integration Suite, standard edition (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008411 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$57,688.14	$39,474.43	GSA	3	$118,423.29
55	8008675-611	SAP S/4HANA Cloud, disaster recovery, private edition (1-Infinite Tier; 17% of Net Recurring; Per Year; The published $0.01 price is not the Customer's final price. The purchase price of the support is based on a Commercial List Price that is 17% of the SAP Industries, Inc. - 8008675 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$0.01	$246,353.83	GSA	1	$246,353.83
56	8008690-611	SAP S/4HANA Cloud, additional non-productive tier, private edition (S) (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008690 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$246,506.24	$124,426.29	GSA	1	$124,426.29
57	8012580-1-Infinite-611	SAP Sales Cloud and SAP Service Cloud Version 2, test tenant (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8012580-1-Infinite Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$25,330.70	$13,501.77	GSA	1	$13,501.77
58	8013668-1-2-611	SAP Document and Reporting Compliance for SAP S/4HANA Cloud Private Edition (1-2 Tier; Block Of 1 Object; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8013668-1-2 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$11,062.01	$5,737.47	GSA	1	$5,737.47
59	8014871-1-20-611	SAP S/4HANA Cloud for receivables management, private edition (1-20 Tier; Block Of 115660000 Revenue; Minimum of 5 Block(s); Per Year) SAP Industries, Inc. - 8014871-1-20 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$3,916.9000	$2,039.3400	GSA	5	$10,196.70

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
60	8015461-1-6-611	SAP Secure Login Service for SAP GUI (1-6 Tier; Block Of 500 User; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8015461-1-6 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$5,595.57	$3,760.15	GSA	1	$3,760.15
61	8018603-1-Infinite-611	SAP Cloud ALM, tenant extension (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8018603-1-Infinite Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$24,889.51	$18,505.44	GSA	1	$18,505.44
62	8019709-1-Infinite-611	Customer-Managed Data Products (1-Infinite Tier; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019709-1-Infinite Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$18,669.82	$12,885.42	GSA	1	$12,885.42
63	8019742-101-250-611	SAP Service Cloud Version 2 (101-250 Tier; Block Of 1 User; Minimum of 10 Block; Per Year) SAP Industries, Inc. - 8019742-101-250 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$1,140.6300	$590.7400	GSA	140	$82,703.60
64	8020297-1-100-611	SAP S/4HANA Cloud, Digital Access, private edition (1-100 Tier; Block Of 1000 Document; Minimum of 10 Block(s); Per Year) SAP Industries, Inc. - 8020297-1-100 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$118.3700	$60.7200	GSA	10	$607.20
65	8020745-1-500-611	SAP Ariba Sourcing and Procurement for Public Sector in SAP S/4HANA Cloud Private Edition (1-500 Tier; Block Of 10000000 Spend; Minimum of 75 Block(s); Per Year) SAP Industries, Inc. - 8020745-1-500 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$6,710.2000	$3,133.1900	GSA	75	$234,989.25
66	8017178-1-Infinite	SAP Joule embedded entitlement (1-Infinite Tier; Block of 1 Transaction; Per Month; $0.01 is not the customer's final price. Price available upon request, please contact Carahsoft Technology Corp.) SAP Industries, Inc. - 8017178-1-Infinite Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553		$0.00	OM	26	$0.00

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
67	8019271-1-infinite-611	SAP Business Data Cloud, core capacity (1-Infinite Tier; Block Of 1 Capacity Unit; Minimum of 640 Block; Per Year) SAP Industries, Inc. - 8019271-1-infinite Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$12.4800	$8.6300	GSA	36,000	$310,680.00
68	8019676-1001-2500-611	WalkMe Premium for SAP S/4HANA Private Cloud Edition (1001-2500 Tier; Block Of 1 Active User; Minimum of 500 Block(s); Per Year) SAP Industries, Inc. - 8019676-1001-2500 Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$93.9400	$45.9400	GSA	1,300	$59,722.00
69	8019164-1-Infinite-611	SAP AI Unit (1-Infinite Tier; Block Of 100 Capacity Unit; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019164-1-Infinite Start Date: 08/01/2029 End Date: 07/31/2030 Reference ID: 3063598699 ERP ID: 1012553	$726.3500	$362.2200	GSA	240	$86,932.80
		OPTION YEAR 3 SUBTOTAL:					$2,527,037.26
		OPTION YEAR 4					
70	8019361-551-750-611	SAP Cloud ERP Private (551-750 Tier; Block Of 1 Full Use Equivalent; Minimum of 60 Block; Per Year) SAP Industries, Inc. - 8019361-551-750 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$3,228.2100	$1,633.8500	GSA	733	$1,197,612.05
71	8008411-611	SAP Integration Suite, standard edition (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008411 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$57,688.14	$39,474.43	GSA	3	$118,423.29
72	8008675-611	SAP S/4HANA Cloud, disaster recovery, private edition (1-Infinite Tier; 17% of Net Recurring; Per Year; The published $0.01 price is not the Customer's final price. The purchase price of the support is based on a Commercial List Price that is 17% of the SAP Industries, Inc. - 8008675 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$0.01	$246,353.83	GSA	1	$246,353.83

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
73	8008690-611	SAP S/4HANA Cloud, additional non-productive tier, private edition (S) (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8008690 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$246,506.24	$124,426.29	GSA	1	$124,426.29
74	8012580-1-Infinite-611	SAP Sales Cloud and SAP Service Cloud Version 2, test tenant (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8012580-1-Infinite Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$25,330.70	$13,501.77	GSA	1	$13,501.77
75	8013668-1-2-611	SAP Document and Reporting Compliance for SAP S/4HANA Cloud Private Edition (1-2 Tier; Block Of 1 Object; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8013668-1-2 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$11,062.01	$5,737.47	GSA	1	$5,737.47
76	8014871-1-20-611	SAP S/4HANA Cloud for receivables management, private edition (1-20 Tier; Block Of 115660000 Revenue; Minimum of 5 Block(s); Per Year) SAP Industries, Inc. - 8014871-1-20 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$3,916.9000	$2,039.3400	GSA	5	$10,196.70
77	8015461-1-6-611	SAP Secure Login Service for SAP GUI (1-6 Tier; Block Of 500 User; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8015461-1-6 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$5,595.57	$3,760.15	GSA	1	$3,760.15
78	8018603-1-Infinite-611	SAP Cloud ALM, tenant extension (1-Infinite Tier; Block Of 1 Tenant; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8018603-1-Infinite Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$24,889.51	$18,505.44	GSA	1	$18,505.44
79	8019709-1-Infinite-611	Customer-Managed Data Products (1-Infinite Tier; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019709-1-Infinite Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$18,669.82	$12,885.42	GSA	1	$12,885.42
80	8019742-101-250-611	SAP Service Cloud Version 2 (101-250 Tier; Block Of 1 User; Minimum of 10 Block; Per Year) SAP Industries, Inc. - 8019742-101-250 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$1,140.6300	$590.7400	GSA	140	$82,703.60

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SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	GSA PRICE	QUOTE PRICE		QTY	EXTENDED PRICE
81	8020297-1-100-611	SAP S/4HANA Cloud, Digital Access, private edition (1-100 Tier; Block Of 1000 Document; Minimum of 10 Block(s); Per Year) SAP Industries, Inc. - 8020297-1-100 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$118.3700	$60.7200	GSA	10	$607.20
82	8020745-1-500-611	SAP Ariba Sourcing and Procurement for Public Sector in SAP S/4HANA Cloud Private Edition (1-500 Tier; Block Of 10000000 Spend; Minimum of 75 Block(s); Per Year) SAP Industries, Inc. - 8020745-1-500 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$6,710.2000	$3,133.1900	GSA	75	$234,989.25
83	8017178-1-Infinite	SAP Joule embedded entitlement (1-Infinite Tier; Block of 1 Transaction; Per Month; $0.01 is not the customer's final price. Price available upon request, please contact Carahsoft Technology Corp.) SAP Industries, Inc. - 8017178-1-Infinite Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553		$0.00	OM	26	$0.00
84	8019271-1-infinite-611	SAP Business Data Cloud, core capacity (1-Infinite Tier; Block Of 1 Capacity Unit; Minimum of 640 Block; Per Year) SAP Industries, Inc. - 8019271-1-infinite Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$12.4800	$8.6300	GSA	36,000	$310,680.00
85	8019676-1001-2500-611	WalkMe Premium for SAP S/4HANA Private Cloud Edition (1001-2500 Tier; Block Of 1 Active User; Minimum of 500 Block(s); Per Year) SAP Industries, Inc. - 8019676-1001-2500 Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$93.9400	$45.9400	GSA	1,300	$59,722.00
86	8019164-1-Infinite-611	SAP AI Unit (1-Infinite Tier; Block Of 100 Capacity Unit; Minimum of 1 Block; Per Year) SAP Industries, Inc. - 8019164-1-Infinite Start Date: 08/01/2030 End Date: 07/31/2031 Reference ID: 3063598699 ERP ID: 1012553	$726.3500	$362.2200	GSA	240	$86,932.80
		OPTION YEAR 4 SUBTOTAL:					$2,527,037.26
		SUGGESTED SUBTOTAL:					$12,336,331.96

TOTAL PRICE:	**$2,197,410.57**
TOTAL QUOTE:	**$2,197,410.57**

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Quote Terms:

By issuing a Purchase Order that references Carahsoft Quote Number 65074595 and GSA MAS 8F: 47QSWA18D008F, San Diego Metropolitan Transit System agrees to be bound by the terms and conditions outlined below.

San Diego Metropolitan Transit System's access to and use of the SAP Cloud Services, and SAP's obligations thereto, are subject to the following, which are collectively referred to as the "Customer Cloud Agreement", and which are given priority in the order listed:

1) Appendix A - Additional Terms

2) SAP Cloud Supplement http://www.sap.com/agreements-cloud-supplement

3) Support Schedule for Cloud Services http://www.sap.com/agreements-cloud-support

4) Service Level Agreement for Cloud Services http://www.sap.com/agreements-cloud-service-level-agreement

5) Data Processing Agreement for Cloud Services https://static.carahsoft.com/concrete/files/5517/0293/2214/SAP_GTC_Cloud_DPA_and_DPA_GSA_Approved_10.3.23.pdf

6) General Terms and Conditions for SAP Cloud Services (for GSA Indirect Sales)
https://static.carahsoft.com/concrete/files/5517/0293/2214/SAP_GTC_Cloud_DPA_and_DPA_GSA_Approved_10.3.23.pdf

Appendix A – Additional Terms

1. EFFECTIVE DATE

This Carahsoft Quote as issued by Carahsoft is a binding offer by Carahsoft. It only becomes effective upon Carahsoft's receipt of a Customer PO against this Carahsoft Quote ("**Effective Date**") on or prior to 06/30/2026.

2. CLOUD SERVICE

2.1. Cloud Service Order and Support

2.1.1. Customer purchases the SAP cloud services in line with the Usage Metric and volume as set forth in Carahsoft Quote for the End User ("**Cloud Services**").

2.1.2. Unless otherwise stated in the Carahsoft Quote or in the applicable Supplemental Terms, SAP will provide "SAP Enterprise Support Cloud Editions" for the Cloud Services as set forth in the Cloud Support Schedule.

2.2. Subscription Term

2.2.1. The initial subscription term will begin on the earliest Product Start Date and will be effective until the latest Product End Date as set forth in Schedule 1 ("**Initial Term**").

2.2.2. Thereafter, the Initial Term and any renewal subscription term for a Cloud Service is automatically extended for subsequent periods of 12 months (each a "Renewal Term") unless (i) the Supplemental Terms state otherwise, (ii) the Renewal Type shows up as "active" below or (iii) terminated by Carahsoft or Customer in compliance with the Agreement. If the Renewal Type shows up as "active" below, the subscription term automatically ends unless a new Carahsoft Quote is agreed between Carahsoft and the Customer at least thirty (30) days prior to the Product End Date.

Renewal Type: Active

3. PAYMENT TERMS AND INVOICING

3.1. Customer must pay to Carahsoft the fees for the Cloud Services within 30 days of date of invoice. Payment is not dependent upon completion of any implementation or other services.

3.1.1. Unless the Supplemental Terms state otherwise, fees for the Cloud Services, Cloud Credits and AI Units will be invoiced by Carahsoft and paid by Customer quarterly in arrears. Carahsoft will deduct fees or invoice Customer monthly in arrears for use of the Active Cloud Services, Active AI Services and Active AI Features in the preceding month as further set out in this Carahsoft Quote.

3.2. The fee for the Initial Term is set forth in Carahsoft Quote #65074595 as Total Net Fee. Carahsoft may increase the fees for the Cloud Services, Cloud Credits and AI Units in accordance with this Carahsoft Quote.

3.3. Carahsoft may provide invoices to an email address provided by Customer.

4. AUTHORIZED ADMINISTRATORS

Customer confirms that the following technical administrator is the main contact for technical and system related communications including system notices for the End User.

End User's technical administrator name: Amanda Jimenez

End User's technical administrator e-mail: amanda.jimenez@sdmts.com

5. SUBSCRIPTION CLOUD SERVICES

5.1. Application

This Section applies only to Subscription Cloud Services as defined below.

5.2. Specific Definitions

5.2.1. "**Subscription Cloud Services**" means all Cloud Services subscribed to under this Carahsoft Quote, except for CPEA Cloud Services, Cloud Platform Voucher, BTPEA Cloud Services and AI Units, if any.

5.2.2. "**Excess Use**" means any use of a Subscription Cloud Service that exceeds the Usage Metrics and Usage Metric Limitation/Volume stated in this Carahsoft Quote.

5.3. Excess Use

In case of Excess Use, Customer shall execute an additional Carahsoft Agreement to document subscriptions for such additional Usage Metric, Usage Metric Limitation/Volume. Customer shall pay for Excess Use based on Carahsoft's prices effective on the date the Excess Use began. Fees for Excess Use accrue from the date the Excess Use began.

5.4. Fee Changes

5.4.1. Carahsoft may increase fees for the Cloud Services at the beginning of each Renewal Term. This increase will not exceed 3.3%. Not raising fees is not a waiver of Carahsoft's right to do so.

6. SAP AI UNITS

6.1. Application

This Section applies only to AI Units as defined below.

6.2. Definitions

6.2.1. "**Active AI Service**" means:

(a) for AI Business Packages, any AI User that End User added to an AI Business Package; and

(b) for any other Eligible AI Service, the use of any AI Feature,

that End User Activated and has not Deactivated.

6.2.2. "**Activation**" means a process (via functionality provided via a dashboard in SAP For Me or any other system provided by SAP SE or any of its Affiliates) by which End User:

(a) for AI Business Packages, activates any AI Business Package and adds the related AI Users; and

(b) for any other Eligible AI Service, enables and configures any AI Feature.

6.2.3. "**AI Business Package**" means any Eligible AI Service identified by having a defined number of requests per user.

6.2.4. "**AI Business Package Request**" means each request that End User receives per AI User for the related AI Business Package as further specified in the Eligible AI Feature Guide under "Units of Measures".

6.2.5. "**AI Feature**" means any individual artificial intelligence capability that is part of an Eligible AI Service as described in the Documentation.

6.2.6. "**AI Units**" means any line item designated as "SAP AI Unit" in this Carahsoft Quote.

6.2.7. "**AI User**" means any individual to whom End User grants access authorization to use any Eligible AI Service based on a unique user identifier that is an employee, agent, contractor or representative of End User, End User's Affiliates, or End User's and End User's Affiliates' Business Partners.

6.2.8. "**Availability Period**" means each period starting on a Product Start Date and ending on the next Product End Date each as set forth for the AI Units in this Carahsoft Quote.

6.2.9. "**Capacity Units**" means the number of units available for the related Availability Period as specified for the AI Units under "Usage Metric Limitation/Volume" in this Carahsoft Quote.

6.2.10. "**Deactivation**" means a process (via functionality provided via a dashboard in SAP For Me or any other system provided by SAP SE or any of its Affiliates) by which End User:

(a) for AI Business Packages, removes all related AI Users and deactivates any AI Business Package; and

(b) for any other Eligible AI Service, disables any AI Feature.

6.2.11. "**Eligible AI Feature Guide**" means the "AI Features Guide" posted under https://www.sap.com/ai-features-guide.

6.2.12. "**Eligible AI Service**" means any "Eligible AI Service" listed in the Eligible AI Feature Guide.

6.2.13. "**Per-Unit Factor**" means the "AI Unit Conversion Factor" (as specified in the Eligible AI Feature Guide) which will be determined based on:

(a) for AI Business Packages, any AI User that End User added to an AI Business Package; and

(b) for any other Eligible AI Service, actual use of any AI Feature,

rounded up to the "Block Size" (as specified in the Eligible AI Feature Guide).

6.2.14. "**Pooled Excess Use PPU**" means any Excess Use PPU stated in the Carahsoft Quote for any line item designated as "SAP AI Unit" in any agreement between End User and (a) SAP SE or any of its Affiliates or (b) Carahsoft or any other SAP VAR partner.

6.2.15. "**SAP For Me**" means the personalized "SAP for Me" customer portal provided by SAP SE or any of its Affiliates (see: https://me.sap.com/).

6.3. Availability of Capacity Units

6.3.1. After Activation of an AI Business Package or AI Feature, End User can use such Active AI Service and thereby consume Capacity Units.

6.3.2. Capacity Units will only be available during the current Availability Period.

6.3.3. Any unused Capacity Units expire and are forfeited by Customer at the end of the current Availability Period and will not be available for use in any subsequent Availability Period.

6.4. Pooling of Capacity Units

6.4.1. Any Capacity Units obtained hereunder will be pooled with all other AI capacity units that End User receives from SAP SE or any of its Affiliates, either directly or indirectly via Carahsoft ("**Pooled Capacity Units**").

6.4.2. SAP SE or any of its Affiliates will deduct Per-Unit Factors for any Active AI Service from the Pooled Capacity Units based on the following criteria ("**Pooled Capacity Units Deduction Logic**"), independent of the current subscription term of any agreement that includes AI capacity units:

(a) If multiple agreements with a positive balance of AI capacity units have different availability period expiration dates, Per-Unit Factors will be deducted first from the agreement that has the earliest availability period expiration date;

(b) If multiple agreements with a positive balance of AI capacity units have the same availability period expiration date, Per-Unit Factors will be deducted from the agreement with the earliest availability period start date; and

(c) If multiple agreements with a positive balance of AI capacity units have the same availability period expiration date and the same availability period start date, Per-Unit Factors will be deducted from the agreement with the earliest contract start date.

6.5. Consumption of Pooled Capacity Units

6.5.1. If End User has Pooled Capacity Units available, SAP SE or any of its Affiliates will:

(a) deduct fees for any Active AI Service based on the corresponding Per-Unit Factor according to the Pooled Capacity Units Deduction Logic; and

(b) provide a monthly balance statement for the preceding calendar month reflecting:

(i) any Active AI Service;

(ii) in case of AI Business Packages, the number of assigned AI Users and related AI Business Package Requests as well as the use of AI Business Package Requests each per AI Business Package; and

(iii) the remaining balance of Pooled Capacity Units.

6.5.2. If all Pooled Capacity Units with a positive balance of AI capacity units for the current availability periods have been fully consumed according to the Pooled Capacity Units Deduction Logic, Carahsoft will invoice the Customer monthly in arrears for any Active AI Service based on the Pooled Excess Use PPU from that agreement Carahsoft will deduct or has deducted the last AI capacity units from based on the Pooled Capacity Units Deduction Logic, if such agreement was concluded with the Customer.

6.5.3. Customer may increase the amount of Pooled Capacity Units by executing a Carahsoft Quote for additional AI capacity units.

6.5.4. SAP SE or Carahsoft reserves the right to inform End User directly of such consumption of Pooled Capacity Units.

6.6. Minimum Usage/Rounding Up

6.6.1. End User may only use a quantity in blocks equal to or greater than the "Minimum Usage Requirement" specified in the Eligible AI Feature Guide.

6.6.2. For each Active AI Service, any decimal value calculated based on use of AI Features will be rounded up to the next full AI Unit value.

6.7. AI Users and AI Business Package Requests

6.7.1. Subscription to AI Users

For AI Business Packages, End User subscribes to AI Users by activating an AI Business Package and assigning AI Users to it. Any direct or indirect usage by anyone other than the AI Users assigned to an AI Business Packages is not permitted.

6.7.2. Addition and Removal of AI Users

(a) End User may add AI Users to and remove AI Users from any AI Business Package at any time.

(b) If End User adds any AI User to an AI Business Package during a calendar month, the corresponding Per-Unit Factor will be charged retroactively for the entire month.

(c) If End User removes any AI User from an AI Business Package during a calendar month, the corresponding Per-Unit Factor will be charged for the entire month. The removed AI Users will be deactivated immediately and may no longer be used. However, the AI Business Package Requests related to such removed AI User remain and may be utilized by any other remaining AI User for the same AI Business Package.

6.7.3. Pooling and Overuse of AI Business Package Requests

(a) For each AI User that End User adds to an AI Business Package, End User receives the related number of AI Business Package Requests per calendar month as stated in the Eligible AI Feature Guide.

(b) Any AI Business Package Request will be pooled with all other AI Business Package Requests that End User receives for the same AI Business Package ("**Pooled Request**"). Pooling of AI Business Package Requests across different AI Business Packages is explicitly excluded.

(c) Any AI User that has been Activated and not Deactivated for an AI Business Package may use the Pooled Requests available for such AI Business Package.

(d) The monthly balance statement will indicate the number of AI Business Package Requests that End User consumed by using AI Features available under an AI Business Package.

(e) Pooled Requests will only be available during the current calendar month.

(f) Any unused Pooled Requests expire and are forfeited by the Customer at the end of each calendar month and will not be available for use in any subsequent calendar months.

(g) If the Pooled Requests available for the current calendar month have been fully consumed, SAP SE or any of its Affiliates will deduct any excess use monthly in arrears from the Pooled Capacity Units; whereby such excess use will be calculated separately for each AI Business Package based on the Per-Unit Factors for "Overage Request" specified in the Eligible AI Feature Guide. There will be no aggregation of "Overage Requests" across AI Business Packages.

6.7.4. When the Agreement expires, is terminated, non-renewed or ends in any other way, any Pooled Requests will expire and are forfeited by the Customer.

6.8. Active AI Service as Cloud Service

Each Active AI Service is deemed a Cloud Service as defined in the Carahsoft Quote and subject to the SAP AI Units Supplement posted on the SAP Agreements Website under http://www.sap.com/agreements-cloud-supplement. As there are no individual SLAs for each Active AI Service, the SLA of the underlying Cloud Service applies, unless otherwise stated in the SAP AI Units Supplement.

6.9. Activation and Deactivation of Active AI Services

6.9.1. Activation requires End User to have a current subscription to the Cloud Service that an AI Feature is embedded in or connected to.

6.9.2. End User is solely responsible for Activation of any AI Business Package or AI Feature and Deactivation of any Active AI Service as well as for the adding and removing of AI Users to any AI Business Package.

6.9.3. Customer confirms that:

(a) End User authorizes the technical administrator set out in this Carahsoft Quote (and any successor designated by End User) to:

(i) undertake Activation of any AI Business Package, and AI Feature as well as Deactivation of any Active AI Service, and

(ii) add any AI User to and remove any AI Users from any AI Business Package.

(b) End User is solely responsible for any acts or omissions taken by such administrators.

6.10. Fee Changes

6.10.1. Carahsoft may increase fees for the AI Units at the beginning of each Renewal Subscription Term. This increase will not exceed 3.3%. Not raising fees is not a waiver of Carahsoft's right to do so.

6.10.2. The Excess Use PPU stated in the Carahsoft Agreement will increase at the same time and in the same manner as any increases in the fees for AI Units.

6.11. Changes to Eligible AI Feature Guide

6.11.1. Adding and Removing Eligible AI Services and AI Features

6.11.1.1. SAP SE or any of its Affiliates may add AI services and associated per-unit factors to the Eligible AI Feature Guide during the Subscription Term.

6.11.1.2. SAP SE or any of its Affiliates may remove any AI Business Package and other Eligible AI Service from the Eligible AI Feature Guide by giving the End User 6 months' prior notice ("**Removed AI Service**"). SAP SE or any of its Affiliates shall give such notice by email, through SAP For Me or another administrative dashboard provided by SAP SE or any of its Affiliates. During the notice period, End User can continue Activating and Deactivating any AI Business Package and other Eligible AI Service as well as using any AI Feature thereunder.

6.11.1.3. Thereafter, End User may keep Activated such Removed AI Service and continue using any AI Feature of the Removed AI Service for the remainder of the Subscription Term if the Removed AI Service belongs to Group 1. This exception does not apply to any Removed AI Service belonging to Group 2.

6.11.1.4. By default, all AI Business Packages and other Eligible AI Services belong to Group 1, unless SAP SE or any of its Affiliates has explicitly classified any AI Business Package or any other Eligible AI Service as Group 2 in the Eligible AI Feature Guide.

AI Business Packages and other Eligible AI Services categorized as Group 2 can be moved to Group 1 but not the other way round.

7. PROFESSIONAL SERVICES

7.1. Professional Services Agreement

In addition to the Cloud Services described in this Carahsoft Quote, SAP shall provide End User with distinct Professional Services (also "**Services**") as listed in the Carahsoft Quote.

7.2. SAP and End User will, within 12 months of the Service Start Date as set forth in the Carahsoft Quote, mutually agree upon the start of the delivery of the Services within the subscription term of the underlying Cloud Service. There is no discount, refund or credit if the Services are not called off within 12 months after the Service Start Date. "**Service Start Date**" means the earliest date when End User is entitled to call off the Service to plan the delivery start of the Services together with SAP.

7.2.1. SAP delivers the Services according to the following terms and conditions, listed in order of precedence, and collectively referred to as the "**Services Agreement**" which is separate from the Agreement for Cloud Services:

(a) This Professional Services section

(b) Scope Document (see: https://www.sap.com/about/trust-center/agreements/services/scope-documents.html)

(c) Data Processing Agreement for Cloud Services, SAP Support and SAP Services (see: https://www.sap.com/data-processing-agreements)

(d) General Terms and Conditions for SAP Services ("**Services GTC**") (see: https://www.sap.com/about/trust-center/agreements/services/sap-professional-services.html)

7.2.2. Review and Exclusions

The Section "Review" in this Carahsoft Quote applies to the Services Agreement. For purposes of this Services Agreement, the Section "Change Request Procedures" of the applicable GTC does not apply.

7.3. Legal and Regulatory Matters

Carahsoft will not provide any advisory services regarding any End User's compliance with tax, legal, or other regulatory matters. SAP Services will be limited to technical assistance based on requirements as specified by End User. End User is solely responsible for determining and validating its compliance with tax, legal and other regulatory matters.

8. ADDITIONAL TERMS

The Agreement is subject to the following modifications:

8.1. Additional Terms for SAP Business Data Cloud, core capacity

8.1.1. Management of End User Capacity Service Selection and SAP Provisioning and Delivery

End User's selection of specific Capacity Services from those available with the SAP Business Data Cloud, core capacity Cloud Service (as set forth in the SAP Business Data Cloud Supplement) and SAP's provisioning and delivery thereof (all subject to the Usage Metric Limitation and Subscription Term for the SAP Business Data Cloud, core capacity Cloud Service) will be documented and managed using:

(a) for Capacity Services (other than SAP BW Capacity Services and SAP MDG Capacity Services), the customer portal found at https://me.sap.com/home (inclusive of any successor site(s) made available by SAP, "SAP for Me") will be used;

(b) for SAP BW Capacity Services, "Exhibit 1, End User Selected SAP BW Capacity Services", which is incorporated herein and made a part hereof as "Exhibit 1" to the Carahsoft Quote; and

(c) for SAP MDG Capacity Services, "Exhibit 2, End User Selected SAP MDG Capacity Services", which is incorporated herein and made a part hereof as "Exhibit 2" to the Carahsoft Quote.

For purposes of clarity, if End User does not select any SAP BW Capacity Services and/or SAP MDG Capacity Services as of the effective date of the Carahsoft Quote:

(i) only a "shell" (i.e., blank other than header detail) Exhibit 1 and/or Exhibit 2 (as applicable) will be included as of the effective date of this Carahsoft Quote;

(ii) should End User subsequently (i.e., during the Subscription Term) desire any SAP BW Capacity Services and/or SAP MDG Capacity Services, Customer will notify Carahsoft of the same and the parties will work in good faith to complete the Exhibit 1 and/or Exhibit 2 shell(s) (as applicable) and contractually implement the same; and

(iii) no SAP BW Capacity Services or SAP MDG Capacity Services will be provisioned or delivered until the requirements in (ii) are complete.

8.1.2. Regarding SAP BW Capacity Services and SAP MDG Capacity Services

Provisioning and availability of SAP BW Capacity Services and SAP MDG Capacity Services may be delayed beyond the Product Start Date for SAP Business Data Cloud, core capacity. Applicable product start dates for SAP BW Capacity Services and SAP MDG Capacity Services, if any, will be as set forth in the applicable Exhibit(s).

8.1.3. Regarding SAP Databricks Capacity Services (all of which are non-SAP developed cloud services)

8.1.3.1. Special Terms Applicable to SAP Databricks Capacity Services

Notwithstanding anything in the Agreement to the contrary, the following special terms apply to all SAP Databricks Capacity Services in the SAP Business Data Cloud Supplement (excluding the SAP4ME administrative and support services):

8.1.3.1.1. End User has the option to consume SAP Databricks Capacity Services, provided that End User first accepts a separate agreement with Databricks ("**Databricks Agreement**"), which is provided for acceptance during provisioning of the SAP Databricks Capacity Services. A reference copy of the Databricks Agreement is available for preview at https://www.databricks.com/legal/sap-databricks-tos. End User has no entitlement to and cannot use the SAP Databricks Capacity Services if it does not enter into a Databricks Agreement.

8.1.3.1.2. Carahsoft is not a party to the Databricks Agreement and has no control over the Databricks Agreement.

8.1.3.1.3. The following subject matter is governed exclusively by the Databricks Agreement:

(a) all data protection obligations applicable to processing of Personal Data by or within SAP Databricks Capacity Services; and

(b) all administrative, physical, and technical safeguards to protect the security and confidentiality of SAP Databricks Capacity Services and the Databricks Customer Data.

"**Databricks Customer Data**" means any Customer Data processed by or within SAP Databricks Capacity Services.

8.1.3.1.4. For clarity, the DPA and SAP Product Development Schedule in the Agreement with Carahsoft do not apply to SAP Databricks Capacity Services.

8.1.3.1.5. Carahsoft is not a processor or subprocessor of any Personal Data by or within SAP Databricks Capacity Services, and Carahsoft is not responsible for any processing of Personal Data by Databricks, or for Databricks complying with any data protection or privacy laws applicable to Personal Data.

8.1.3.1.6. The Security Measures of the SAP Cloud Services apply to SAP Cloud Services independently processing Customer Data outside of SAP Databricks Capacity Services, and do not apply to SAP Databricks Capacity Services. Carahsoft is not responsible for providing or maintaining any security or technical and organizational measures of any kind for SAP Databricks Capacity Services or Databricks Customer Data in SAP Databricks Capacity Services. The security and data protection commitments for SAP Databricks Capacity Services and Databricks Customer Data are made solely between End User and Databricks pursuant to the Databricks Agreement. References to SAP Cloud Services in this section do not include SAP Databricks Capacity Services.

8.1.3.1.7. All responsibility, liability, any regulatory requirements, and allocation of risk for Databricks Customer Data in SAP Databricks Capacity Services are exclusively between End User and Databricks pursuant to the Databricks Agreement, and Carahsoft has no responsibility or liability for damages of any kind relating to Databricks Customer Data in SAP Databricks Capacity Services except to the extent caused by Carahsoft.

8.1.3.1.8. Electing to use SAP Databricks Capacity Services is an option for customers with a subscription for the SAP Business Data Cloud, core capacity Cloud Service; Customer does not have any right of refund on the basis that End User has elected not to enter into the Databricks Agreement to use SAP Databricks Capacity Services.

8.1.3.1.9. If Databricks notifies Carahsoft that it is terminating the Databricks Agreement due to a material uncured breach by End User, End User's subscription to all SAP Databricks Capacity Services will automatically terminate upon the termination effective date of the Databricks Agreement and Databricks will de-activate End User's access to all SAP Databricks Capacity Services. End User will not be entitled to a refund or reduction of the Capacity Units as a result of an SAP Databricks Capacity Services termination, but End User may instead allocate the remaining balance of the Capacity Units to consume other eligible non-SAP Databricks Capacity Services as set forth in the SAP Business Data Cloud Supplemental Terms.

8.1.3.1.10. Without limiting the foregoing, no term in the Databricks Agreement will be deemed to modify the Agreement or any other agreement between Carahsoft and the Customer, unless otherwise expressly agreed in writing by Carahsoft.

9. EXPORT RESTRICTIONS

Further information on SAP's Export Control and Sanctions Compliance can be found at: https://www.sap.com/about/agreements/export-statements.html.

10. TERMINATION RIGHTS-UNDEFINED BOM

10.1 Between 12/31/2026 and 07/31/31, Carahsoft grants Customer the right to terminate a maximum of USD 866,349.04 of Maintenance Base, for any SAP Software and third party software licensed (excluding Software and/or Named Users licensed on an unlimited or single-metric basis and any Named Users and/or Software for which Use rights are parked or suspended, if

any) as of the Effective date of this Carahsoft Quote, under the SAP Software License Agreement between Carahsoft and ("Licensee"), effective 12/31/26, including all amendments thereto executed prior to and in effect as of the Effective Date of this Carahsoft Quote ("License Agreement"), in accordance with the terms set forth herein ("Termination Right"). With the exception of third party software and subject to any license metric limitations, the Termination Right may be a reduction of licenses, a termination of an entire license or any combination of the foregoing.

10.2 Licensee may exercise the Termination Right with respect to third party software; however, Licensee must terminate one hundred percent (100%) of all the products licensed from a particular third-party software licensor.

10.3 Licensee must notify Carahsoft in writing of its intent to exercise the Termination Right upon no less than ninety (90) days' notice prior to the termination effective date and include with such notice a list of software that will be subject to termination ("Terminated Software"); provided, however, that the Software to be terminated is beyond its support "Initial Term" as defined in the License Agreement. Carahsoft and Customer shall enter into a termination amendment. Licensee will be responsible for SAP Support fees through the effective date of such termination. Licensee shall have the right to terminate once per calendar year with an effective date on a quarter end month.

10.4 Termination under this Section 10 is not permitted if Customer is still using the licenses under the License Agreement. Carahsoft has the right to assess the reasonableness of each termination request. The reduction in maintenance base shall be calculated based on Carahsoft's then current terms and conditions. Carahsoft have the contractual right to review and reject termination request based on the current Carahsoft Program.

10.5 Licensee will regularly meet all of its main obligations under the License Agreement and be fully paid up on all open invoices, and after each termination Licensee will, in addition to the agreed measurement and audit rights, allow SAP a one-time right, upon ten days prior notice to Licensee, to audit the Licensee's SAP installation(s) to ensure compliance with the obligations set forth in this Section 10.

10.6 Any terms of this Section 10 not defined in this Agreement shall have the meaning prescribed in the License Agreement.

11. TRANSFORMATION INCENTIVE

11.1. Customer is entitled to the Cloud Credit as follows:

11.1.1. Customer is entitled to the first Cloud Credit on the Product Start Date for the Private Cloud Services ("Phase 1").

11.1.2. Customer is entitled to the second Cloud Credit when Customer submits the completed clean core questionnaire via SAP Cloud ALM and makes a selection to use (a) SAP professional services; (b) a Qualified Partner; or (c) Customer's own resources to support Customer's conversion, migration, or greenfield implementation of the Private Cloud Services and eligible Cloud Services under the Transformation Incentive ("Phase 2").

11.2. Customer is entitled to the following Cloud Credit for each of the following phases:

11.2.1. USD 1,180,500.00 in Phase 1

11.2.2. USD 1,180,500.00 in Phase 2

11.2.3 Total Transformation Incentive: USD 2,361,000.00

Schedule 1

SAP Cloud ERP Private BOM, SAP Ariba BOM, SAP Service Cloud Version 2 BOM, SAP AI Unit Summary

Period From 08/01/2026 to 07/31/2031

SAP Cloud Service	Usage Metric	Usage Metric Limitation	Product Start Date	Product End Date	Excess Use PPU / 1 Capacity Unit
SAP AI Unit	100 Capacity Unit	240.00	08/01/2026	07/31/2027	$4.53
SAP AI Unit	100 Capacity Unit	240.00	08/01/2027	07/31/2028	$4.53
SAP AI Unit	100 Capacity Unit	240.00	08/01/2028	07/31/2029	$4.53
SAP AI Unit	100 Capacity Unit	240.00	08/01/2029	07/31/2030	$4.53
SAP AI Unit	100 Capacity Unit	240.00	08/01/2030	07/31/2031	$4.53

SAP Cloud Service	Usage Metric	Usage Metric Limitation	Product Start Date	Product End Date
SAP Cloud ERP Private			08/01/2026	07/31/2031
x SAP AnalytCloud Plan Std dedicated CF	1 User	20		
x SAP AnalytCloud Plan Prof dedicated CF	1 User	5		
x SAP S/4HANA Cld for MDG, priv ed	5000 Object	4		
x SAP Signavio Process Governance	1 User	12		
x SAP Signavio Process Collaboration Hub	10 User	12		
x SAP Signavio Process Governance Collab.	10 User	12		
x SAP HANA Cloud	1 Capacity Unit	3,540		
x Signavio Process Transformation Manager	1 User	25		
x SAP Enterprise Service Management	1000 Transaction	25		
x SAP Build base user	1 Active User	2,199		
x SAP Build premium user	1 Active User	733		
x SAP Build developer	1 Active User	25		

SAP Cloud Service	Usage Metric	Usage Metric Limitation	Product Start Date	Product End Date
x SAP Build runtime	1 Capacity Unit	10,420		
x LeanIX Application Portfolio Mgmt.	1 Application	600		
x SAP Sig Prc. Insights & Intelligence p	500000 Record	1		
x LeanIX Technology Risk and Compliance	1 Application	600		
x LeanIX Architecture and RoadMap Planning	1 Application	600		
x SAP Taulia Solution for CI ERP Private	11805000.00 USD Spend	40		
x SAP S/4HANA Cloud Private Edition	1 Full Use Equivalent	733		
x SAP Signavio Process Modeler	1 User	25		
x SAP BN Supplier Portal for SAP Cld Privt	50000 Document	1		
SAP Ariba Proc for public sctr, priv ed			08/01/2026	07/31/2031
x SAP Ariba Proc for public sctr, priv ed	10000000 Spend	75		
x SAP S/4HANA Product Sourcing, private ed	10000000 Spend	75		
SAP Service Cloud Version 2			08/01/2027	07/31/2031
x SAP Build base user	1 Active User	140		
x SAP Build developer	1 Active User	2		
x SAP Build runtime	1 Capacity Unit	200		
x SAP Service Cloud	1 User	140		

Professional Services

Services	Service Start Date	Total Fee in USD
Transform.prep.serv.f. SAP Business Ste.	08/01/2026	0.00

Total Net Fee	0.00

The amounts set out above are subject to fee changes as set forth in the Carahsoft Quote.

The amounts set out above are net amounts. Applicable taxes are not included. This is not a tax invoice.

Usage Metric Limitation/Volume shows the maximum quantity that End User may use over a 12-month period, unless

(a) the name of the SAP Cloud Service includes “Cloud Platform Enterprise Agreement”, “Cloud Platform Voucher” or “Business Technology Platform Enterprise Agreement”, in which case the Usage Metric Limitation/Volume shows the amount of Cloud Credits available during the relevant Cloud Credits Period; or

(b) the name of the SAP Cloud Service includes “AI Units”, in which case the Usage Metric Limitation/Volume shows the amount of Capacity Units available during the relevant Availability Period.

EXHIBIT 1

END USER SELECTED

SAP BW CAPACITY SERVICES

			Single Phase [00-Jan-1900 - 00-Jan-1900]			
Business Data Cloud - Capacity Service	**In Blocks Of**	**Sales Unit Metric**	**Quantity**	**CU Rate Per Block**	**Monthly CUs**	**Applied Uplifts**

EXHIBIT 2

END USER SELECTED

SAP MDG CAPACITY SERVICES

			Single Phase [00-Jan-1900 - 00-Jan-1900]			
Business Data Cloud - Capacity Service	**In Blocks Of**	**Sales Unit Metric**	**Quantity**	**CU Rate Per Block**	**Monthly CUs**	**Applied Uplifts**

SAP Cloud ERP Private and RISE with SAP S/4HANA Cloud, private edition
Supplemental Terms and Conditions

This Supplement is part of an Agreement for SAP Cloud Services between SAP and Customer and applies only to SAP Cloud ERP Private; SAP Cloud ERP Private, base option; SAP Cloud ERP Private, Limited Option; SAP Cloud ERP Private, sovereign cloud option; RISE with SAP S/4HANA Cloud, private edition, base; RISE with SAP S/4HANA Cloud, private edition and experience management; RISE with SAP S/4HANA Cloud, private edition, premium and premium plus; SAP extended services for SAP S/4HANA Cloud, private edition; SAP S/4HANA Cloud Private Edition; RISE with SAP S/4HANA Cloud, private edition; and RISE with SAP S/4HANA Cloud, private edition, upgrade option Cloud Services and their optional add-ons to which Customer is subscribed (the "Cloud Service"). Any documents referenced in this Supplement are available upon request.

1. CLOUD SERVICE

1.1. The Usage Metrics and additional terms of the Cloud Service are described in the SAP Cloud ERP Private and RISE with SAP S/4HANA Cloud, private edition Service Description Guide ("SDG") available at https://www.sap.com/about/trust-center/agreements/cloud/cloud-services.html?sort=latest_desc&tag=agreements:product-use-and-support-terms/service-description-guides ("Service Description Guide").

1.2. Certain features integrated in the Cloud Service and described as "Cloud Features" as described in the SDG and/or the then-current Documentation may be provisioned on the SAP Business Technology Platform, a multi-tenant cloud platform ("BTP").

1.3. Cloud Service Software may only be accessed and used as a part of the Cloud Service subscribed to by Customer. "Cloud Service Software" means the software included in the Cloud Service as part of the Cloud Service.

1.4. If Customer subscribes to the RISE with SAP S/4HANA Cloud, private edition base, premium, or premium plus Cloud Service, Customer will receive access to the following additional, multi-tenant cloud services subject to the limitations indicated herein (collectively, "Bundled Cloud Services"). Use of each Bundled Cloud Service is subject to the supplemental terms located at http://www.sap.com/agreements-cloud-supplement.

Bundled Cloud Service	RISE with SAP S/4HANA Cloud, private edition, base	RISE with SAP S/4HANA Cloud, private edition, premium ("Premium")	RISE with SAP S/4HANA Cloud, private edition, premium plus ("Premium Plus")*	Bundled Cloud Services Limitation
SAP Build Work Zone, standard edition	X	X	X	For each Full Usage Equivalent of RISE with SAP S/4HANA Cloud, private edition, Customer is entitled to 1 Active User
SAP Build Apps, Enterprise Edition		X	X	See table in Section 1.4.1
SAP Build Process Automation		X	X	See table in Section 1.4.1
CPEA Voucher		If specified in the Order Form	If specified in the Order Form	As indicated in the Order Form
SAP S/4HANA Cloud for Group Reporting, private edition	X	X	X	For Base and Premium, 50 Objects. For Premium Plus, see table in Section 1.4.1
SAP Group Reporting Data Collection	X	X	X	For Base and Premium, 50 Objects. For Premium Plus, see table in Section 1.4.1

SAP Analytics Cloud for planning, predictive standard and professional edition, dedication option		X	X	10 Standard Users and 1 Professional User
SAP S/4HANA Cloud for Cash Management			X	See table in Section 1.4.1
SAP S/4HANA Cloud for Receivables Management			X	See table in Section 1.4.1
SAP Business Network Supplier Portal		X	X	100,000 Documents
SAP Sustainability Control Tower			X	10 Records
SAP Sustainability Footprint Management			X	10 Records
SAP Datasphere		X	X	See table in Section 1.4.1

*If Customer subscribes to RISE with SAP S/4HANA Cloud, private edition, upgrade option, Customer is eligible to receive the difference in Bundled Cloud Services between those received under the RISE with SAP S/4HANA Cloud, premium order form and those specified herein for RISE with SAP S/4HANA Cloud, premium plus based on the usage volume under the RISE with SAP S/4HANA Cloud, premium order form.

1.4.1. Additional access limitations apply to Bundled Cloud Services as noted in the tables immediately below.

FUEs	**SAP Build Apps, Enterprise Edition***	**SAP Build Process Automation***			
		Standard Users	Advanced Users	Attended Automation	Unattended Automation
1 - 135	1 Base Package	20	5	1	2
136 - 550	1 Base Package	20	5	1	2
551 – 1,000	2 Base Packages	50	10	2	4
1,001 – 2,000	2 Base Packages	50	10	2	4
2,001 – 4,000	2 Base Packages	50	10	2	4
4,001 – 6,000	3 Base Packages plus 25 Active Users	100	20	4	8
6,001 – 12,000	3 Base Packages plus 25 Active Users	100	20	4	8
12,001 – 25,000	3 Base Packages plus 75 Active Users	150	75	4	8
25,000 +	3 Base Packages plus 225 Active Users	300	100	5	10

*Use is subject to the BTP Supplement.

FUEs	**SAP S/4HANA Cloud for Group Reporting, private edition and SAP Group Reporting Data Collection**	**SAP S/4HANA Cloud for Cash Management, private edition and SAP S/4HANA Cloud for Receivables Management, private edition**

1 - 135	50 Objects	2 Users and 2 Revenue
136 - 550	50 Objects	2 Users and 2 Revenue
551 – 1,000	100 Objects	4 Users and 4 Revenue
1,001 – 2,000	100 Objects	4 Users and 4 Revenue
2,001 – 4,000	150 Objects	4 Users and 4 Revenue
4,001 – 6,000	150 Objects	8 Users and 8 Revenue
6,001 – 12,000	200 Objects	8 Users and 8 Revenue
12,001 – 25,000	400 Objects	12 Users and 12 Revenue
25,000 +	625 Objects	16 Users and 16 Revenue

FUEs	SAP Datasphere (per Month)
1 - 135	1,700 Capacity Units
136 - 550	1,700 Capacity Units
551 – 1,000	3,400 Capacity Units
1,001 – 2,000	3,400 Capacity Units
2,001 – 4,000	5,100 Capacity Units
4,001 – 6,000	5,100 Capacity Units
6,001 – 12,000	6,800 Capacity Units
12,001 – 25,000	6,800 Capacity Units
25,000 +	6,800 Capacity Units

1.4.2. For RISE with SAP S/4HANA Cloud, private edition; RISE with SAP S/4HANA Cloud, private edition and experience management; RISE with SAP S/4HANA Cloud, private edition, base; RISE with SAP S/4HANA Cloud, private edition, premium; and RISE with SAP S/4HANA Cloud, private edition, premium plus renewals, Customer is entitled to the same Bundled Cloud Services and subject to the same Bundled Cloud Services limitations as referenced in the RISE with SAP S/4HANA Cloud, private edition Supplemental Terms and Conditions in effect at the effective date of the initial order form for the Cloud Service.

1.5. **Embedded Launch Activities.** Embedded Launch Activities are included for a first-time subscription of SAP Cloud ERP Private, RISE with SAP S/4HANA Cloud, private edition, premium and premium plus and RISE with SAP S/4HANA Cloud, base, as specified in the corresponding SAP Cloud ERP Private or SAP S/4HANA Cloud private edition Embedded Launch Activities Specifications Documentation.

2. ARTIFICIAL INTELLIGENCE

2.1. **Artificial Intelligence.** Artificial intelligence ("AI") features and technologies provided with the Cloud Service are subject to the SAP AI Terms available at the following (or a successor) link https://www.sap.com/about/trust-center/agreements.html.

3. ADDITIONAL TERMS

3.1. **Starter System.** With a subscription to the Cloud Service, SAP shall grant the Customer access to a sandbox environment for a limited duration ("Starter System"). The Starter System shall remain accessible for a period of ninety (90) days from the Product Start Date or thirty (30) days following the provisioning of the Cloud Service development (DEV) environment by SAP, whichever comes later. Thereafter, SAP will deactivate the Starter System, and any data residing on the servers hosting the Starter System shall be permanently removed. For the avoidance of doubt, the Starter System is a non-production environment to be used solely for testing purposes and may have limited support, as further described in Documentation.

3.2. **System Maintenance**

3.2.1. SAP performs regular, scheduled maintenance activities to maintain the Cloud Service, including OS security patch levels, database and application patches, infrastructure maintenance and other scheduled proactive activities. Such maintenance activities will be scheduled by SAP in collaboration with Customer and will occur once a month during a 4-hour window on a weekday and/or a weekend (for production environments) ("Scheduled Downtime"). SAP will provide Customer at least seven (7) business days' advance notice before any Scheduled Downtime. If Customer object to such Scheduled Downtime within five (5) days of SAP's notice, SAP and Customer will reasonably schedule maintenance activities for a date, time, and duration as mutually agreed between SAP and Customer based on requirements and resources. If SAP and Customer do not agree on a schedule within seven (7) business days from the date of SAP's notice, SAP shall perform based on the Scheduled Downtime. If Customer fails to cooperate with the scheduling and/or performance of such maintenance activities in a timely manner as recommended by SAP, Customer shall be solely responsible for any resulting issues in the Cloud Service, including unexpected downtime.

3.2.2. Notwithstanding the foregoing, SAP reserves the right to perform Emergency Maintenance activities at any time without Customer's prior consent. SAP will use reasonable efforts to provide Customer with forty-eight (48) hours advance notice regarding performance of Emergency Maintenance. In case of Cloud Service downtime during such Emergency Maintenance, such downtime will be considered "Emergency Downtime" as defined in the SLA (defined in Section 3.4 below). "Emergency Maintenance" are maintenance activities reasonably necessary to prevent or mitigate circumstances that may otherwise pose a significant impact to the Cloud Service.

3.2.3. Customer is responsible for requesting and coordinating with SAP the application of security patches (all security patches with priorities "critical," "high," "medium," or "low") by way of a service request ticket. Such patches will be applied during Scheduled Downtime or other Agreed Downtime, as defined in the SLA.

Support. Support for the Cloud Service will be provided by SAP as described in the Support Policy or Schedule for SAP Cloud Services referenced in the Order Form, as supplemented by the description in Attachment 1 to this Supplement. For the avoidance of doubt, the support services described in the Agreement may only be used to support Cloud Services to which this Agreement applies, as specified in the Order Form, and may not be used to support any other SAP products or third-party solutions, including SAP products purchased under a separate agreement between an affiliate of Customer and SAP (or a distributor of SAP products). Customer acknowledges that if Customer uses any such services for other SAP products or third-party solutions without a separate SAP support agreement for such products, SAP will invoice Customer the applicable accrued fees associated with such time period of use plus a reinstatement fee for support for such products.

3.3. **Service Level Agreement.** The Service Level Agreement applicable to the SAP S/4HANA Private Cloud Edition Cloud Services is the Service Level Agreement for Private Cloud Edition Services and Tailored Option Services ("SLA"). The Service Level Agreement for SAP Cloud Services applies to Bundled Cloud Services that are not RISE with SAP S/4HANA Cloud, private edition Cloud Services.

3.3.1. Section 3 of the SLA (Backup and Computing Environment Incident Reaction Time) shall apply only to Incidents (defined in the SLA) associated with SAP tasks and services applicable to the Computing Environment (defined in the SLA) as identified in the RISE with SAP S/4HANA Cloud, Private Edition Roles and Responsibilities Documentation made available to Customer on SAP's website, at https://help.sap.com/, or upon request.

3.4. **Modifications and Add-Ons.**

3.4.1. **Definitions.**

3.4.1.1. “Add-on” means any development that adds new and independent functionality to the SAP Cloud Service Software, but does not modify existing SAP functionality, and is developed using SAP application programming interfaces or other integration points or other SAP code that allows other software products to communicate with or call on SAP Cloud Service Software. All Add-ons developed by SAP, independently or jointly with Customer, shall be considered Cloud Material and as such, all intellectual property rights in and related to the Add-ons developed by SAP (independently or jointly with Customer) including any derivatives thereof are owned by SAP, SAP SE, their Affiliates or licensors.

3.4.1.2. “Customer ABAP Add-on” means an Add-on developed in the ABAP programming language and developed by or on behalf of Customer without SAP’s participation.

3.4.1.3. “SAP-provided Add-on” means any Add-on that is not a Customer ABAP Add-on and is an Add-on made available for the Cloud Service.

3.4.1.4. “Additional Add-on” means any Add-on that is published by SAP as an SAP certified Add-on on the SAP Certified Solutions Directory.

3.4.1.5. "Modification" means (i) a change to the delivered source code or metadata; or (ii) any development, other than a change to the delivered source code or metadata, that customizes, enhances or changes existing functionality of the SAP Cloud Service Software. For purposes of this Cloud Service, Cloud Materials include all Modifications. For the avoidance of doubt, all intellectual property rights in and related to the Modifications and derivatives thereof are owned by SAP, SAP SE, their Affiliates or licensors.

3.4.2. Customer has the right to develop and/or use Customer ABAP Add-ons, SAP-provided Add-ons, and Additional Add-ons to the SAP Cloud Service Software in furtherance of its permitted use of the Cloud Service under this Agreement. Where Customer is also subscribed to SAP extended services for SAP S/4HANA Cloud, private edition, Customer is only permitted to use SAP-provided Add-ons and Additional Add-ons.

3.4.3. For RISE with SAP S/4HANA Cloud, private edition; RISE with SAP S/4HANA Cloud, private edition, base; RISE with SAP S/4HANA Cloud, private edition and experience management; and RISE with SAP S/4HANA Cloud, private edition, premium only, Customer has the right to develop and use Modifications to the SAP Cloud Service Software in furtherance of its permitted use of the Cloud Service under this Agreement. Where Customer is also subscribed to SAP extended services for SAP S/4HANA Cloud, private edition, Customer is not permitted to make Modifications.

3.4.4. Customer is responsible for all installation, management and support for any Modifications, Customer ABAP Add-ons, and Additional Add-ons. Customer is responsible for testing and resolving source code issues, compatibility issues, security vulnerabilities or other conflicts that may arise from Modifications, Customer ABAP Add-ons, and/or Additional Add-ons permitted under this Agreement and any patches or workarounds, or other changes provided by SAP for the Cloud Service Software, in a timely manner. The SLA and Support Schedule shall not apply to any Customer ABAP Add-ons. Modifications, Customer ABAP Add-ons, and Additional Add-Ons must not enable the circumventing of any restrictions set forth in the Agreement, nor impair or degrade the performance, system availability, operability, or security of the Cloud Service. Customer will inform SAP without undue delay about any issues or vulnerabilities with the Modifications, Customer ABAP Add-ons, or Additional Add-ons that may impair or degrade the Cloud Service. SAP shall not be responsible for any such impairments or degradations of the Cloud Service caused by Customer ABAP Add-ons. For the avoidance of doubt, SAP reserves the right to restrict or require the removal any Add-ons that (i) it determines may pose any such risk to the Cloud Service and/or (ii) it determines does not meet the quality standards for SAP-provided Add-ons; or (iii) where Customer is in breach of the Agreement. In exchange for the right to develop Customer ABAP Add-ons under the Agreement, Customer covenants, on behalf of itself, successors and assigns, not to assert against SAP SE, their Affiliates or licensors, any rights in any Customer ABAP Add-ons, or any claims of any rights, against any SAP product, service, or future SAP development.

3.4.5. Customer ABAP Add-ons and all rights associated therewith, shall be the exclusive property of Customer subject to SAP’s rights in and to the Cloud Service and Cloud Materials as indicated in this Agreement; provided Customer shall not commercialize any such Customer ABAP Add-ons developed under this Agreement. Customer grants to SAP (including SAP SE, its Affiliates, and subcontractors) a non-exclusive right to process, use, and display Customer ABAP Add-ons to provide and support the Cloud Service and as set out in the Agreement. In exchange for the right to develop Customer ABAP Add-ons under the Agreement, Customer

covenants, on behalf of itself, successors, and assigns, not to assert against SAP SE, their Affiliates or licensors, any rights in Customer ABAP Add-on, or any claims of any rights, against any SAP product, service, or future SAP development.

3.5. **Other Customer-Provided Software.** Except as set forth above in connection with Add-ons, Customer may not use any other Customer-provided software in the Cloud Service, including on the operating system. If SAP, on an exceptional basis, permits Customer to use any such Customer-provided software, each of the requirements and restrictions applicable to Add-Ons set forth above shall apply to such Customer provided software. Customer is responsible for obtaining all necessary rights from third parties required for SAP to run and host any Customer-provided software in the Cloud Service environment. Customer will, at SAP's request, provide written verification of such rights. Customer grants to SAP the nonexclusive right to use the Customer-provided software for the sole purpose of and only to the extent necessary for SAP to provide the Cloud Service. Customer acknowledges that additional fees may apply in connection with management and support of such Customer-provided software in the Cloud Service.

3.6. **Customer Data Return.** Prior to termination or expiration of the Subscription Term, at Customer`s request, SAP shall provide to Customer, within a reasonable time period and in a reasonable backup media format utilized by SAP, a final export of the Customer Data in the Cloud Service. Customer must verify the usability of this export within two weeks of receipt. In the event Customer does not provide verification within the two-week period, the exported Customer Data shall be deemed usable.

3.7. **Additional Services**. Customer may request Additional Services (or the SAP Services Team may request such services on Customer's behalf) through a service request on the SAP Service Request Platform or an equivalent platform. SAP will inform Customer (or Partner, if applicable) of the fees for the requested Additional Service, and Customer (or Partner) shall confirm the purchase of such service. Any Additional Services completed by SAP will be invoiced monthly in arrears. "Additional Services" are tasks related to the Cloud Service systems identified in the RISE with SAP S/4HANA Cloud, Private Edition Roles and Responsibilities Documentation (available to Customer on SAP's website or upon request) as "Additional Service."

4. CUSTOMER RESPONSIBILITIES

4.1. SAP`s provision, operation and support of the Cloud Service is subject to Customer`s reasonable cooperation and providing, no later than five (5) business days from the effective date of the Order Form, necessary information (including any on-boarding documentation), authorizations and qualified resources for such activities. Customer authorizes SAP to set up and use an administrative user in the Cloud Service systems as needed to provision and confirm Customer's subscribed usage and technical compliance of the Cloud Service. SAP shall be permitted to audit (at least once annually and in accordance with SAP standard procedures, which may include an on-site and/or remote audit) the Customer's use of the Cloud Service and the Bundled Cloud Service(s) to verify compliance with Usage Metrics, volume, and the Agreement. Customer shall cooperate reasonably in the conduct of such audits.

4.2. Customer may only process, transmit, and store cardholder data, or Customer Data that includes a unique payment card number that identifies an issuer and a particular cardholder account, in the Cloud Service with a subscription to the SAP Digital Payments, base package cloud service and SAP Firewall Service, private cloud edition.

4.3. In connection with Customer's obligations related to Customer Data under the Agreement, Customer Data includes all Customer-provided Software used in the Cloud Service environment.

4.4. Customer is responsible for the definition, documentation, and execution of its business processes in the Cloud Service, including, but not limited to configuration of systems' management and application and data security policies and batch processing requirements. Customer is responsible for providing SAP necessary and sufficient documentation of its applicable processes and Customer ABAP Add-ons for SAP to perform its responsibilities under the Agreement.

4.5. **Upgrades and Releases**

4.5.1. Customer is responsible for having upgrades and new releases of the Cloud Service Software installed and applying security hardening according to SAP's standards as further described in Documentation (including Release Notes). Technical installation of such upgrades and new releases is performed by SAP on request.

Customer must only use a version or release of the Cloud Service Software for which software maintenance and support are current, as provided by SAP. For purposes of this Section, "current" means it is covered by Mainstream Maintenance, Extended Maintenance, or as otherwise identified in the Order Form. Such support is provided according to the current maintenance phases of SAP software releases as described in the SAP Release and Maintenance Strategy, available at https://support.sap.com/releasestrategy ("Release Strategy"). For all Additional and Customer ABAP Add-ons, simplification and incompatibility checks must be executed by Customer. Customer is responsible for evaluating the results of such checks to ensure that implemented business processes, backend and frontend applications and integrations are running after changes to the Cloud Service Software.

4.5.2. SAP's obligations under the Agreement and Documentation are dependent on Customer maintaining the Cloud Service Software as current and Customer's implementation of required security hardening. SAP is not responsible for the reliability, performance, availability, functionality, security, or any other related issues experienced with the Cloud Service Software that may result from running a release that is not current and is not liable to Customer for any loss or damage that might arise from a Cloud Service Software's inoperability or unavailability because it is not current.

4.5.3. Where Customer is also subscribed to SAP extended services for SAP S/4HANA Cloud, private edition, upgrades to the then-current version of the Cloud Service Software are required every two contract years.

4.5.4. If SAP is not able to perform upgrades due to the lack of Customer's cooperation, (i) SAP's ability to provide support may be limited and SAP assumes no responsibilities for such limitations and (ii) the System Availability Service Levels in the SLA shall not apply.

4.6. Customer is responsible for the connection to the Cloud Service, including the Internet connection to the Point of Demarcation. SAP's responsibility shall not extend beyond the Point of Demarcation. Point of Demarcation means the outbound firewall (or, in case of a VPN for access, the point of connection of the SAP network to the VPN) of SAP's computing environment used to provide the Cloud Service.

4.7. If Customer fails to fulfil any Customer obligations set forth in this Supplement, Customer is responsible for the ramifications of such failure including delays, subsequent costs, and any performance, availability, functionality, support, and/or security issues experienced with the Cloud Service Software.

Attachment 1 to
SAP Cloud ERP Private and RISE with SAP S/4HANA Cloud, private edition Supplemental Terms and Conditions
Support Services

This Attachment sets forth the support services provided in addition to the support services of the Support Schedule for Cloud Services under the Agreement. This Attachment does not apply to Cloud Features.

1. SCOPE OF ADDITIONAL SUPPORT SERVICES.

The additional support services apply to Cloud Service Software excluding software to which special support agreements apply exclusively ("Enterprise Support Solutions").

1.1. Continuous Improvement and Innovation

1.1.1. SAP may make available ABAP source code for SAP software applications included in Enterprise Support Solutions (excluding third-party software) and additionally released and supported function modules.

1.1.2. Software change management including changed configuration settings or Enterprise Support Solutions software upgrades, is supported, with content, tools, and additional information.

1.2. Global Support Backbone

1.2.1. SAP Notes on SAP's Customer Support Website document software malfunctions and contain information on how to remedy, avoid and bypass errors. SAP Notes may contain coding corrections. SAP Notes also document related issues, customer questions, and recommended solutions (e.g. customizing settings).

1.2.2. SAP Note Assistant, a tool to install specific corrections and improvements to SAP components, is included.

1.3. Mission Critical Support

For Customer custom code built with the SAP development workbench, SAP provides mission-critical support root-cause analysis (Root Cause Analysis for Custom Code), according to the Global Incident Handling process and response levels for priority "very high" and priority "high" cases as set forth in the Support Schedule for Cloud Services. If the Customer custom code is documented according to SAP's then-current standards available at http://support.sap.com/supportstandards, SAP may provide guidance to assist Customer in issue resolution.

1.4. SAP Application Lifecycle Management

1.4.1. Subject to Customer's purchase of one of the SAP Solution Manager for SAP S/4HANA Cloud, private edition add-ons, Customer may access and use SAP Solution Manager Enterprise Edition (and any successor thereto) during the Subscription Term solely for the following purposes: (i) delivery of SAP Enterprise Support, cloud editions, and (ii) application lifecycle management for Enterprise Support Solutions and other SAP cloud or on-premise solutions for which Customer has a current support agreement with SAP. Such application lifecycle management is limited to:

(i) implementation, configuration, testing, operations, continuous improvement, and diagnostics;

(ii) case management (service desk), problem management and change request management as enabled using SAP CRM technology integrated in SAP Solution Manager Enterprise Edition (Customer does not require a separate package license to SAP CRM);

(iii) mobile application lifecycle management scenarios using SAP NetWeaver Gateway (or equivalent technology) integrated in SAP Solution Manager Enterprise Edition;

(iv) management of application lifecycle management projects for Enterprise Support Solutions and any other software licensed by Customer from third parties and included in the Customer's Cloud Service environment and for hardware systems, supported by Customer's IT team ("Customer IT Solutions") using the project management functionality of SAP Project and Portfolio Management integrated in SAP Solution Manager Enterprise Edition except that the portfolio management functionality of SAP Project and Portfolio Management is not in scope of SAP Solution Manager Enterprise Edition and will need to be licensed separately by Customer; and

(v) administration, monitoring, reporting and business intelligence as enabled using SAP NetWeaver technology integrated in SAP Solution Manager Enterprise Edition. Business intelligence may also be performed provided the appropriate SAP BI software is licensed by Customer as part of the Enterprise Support Solutions.

1.4.2. SAP Solution Manager Enterprise Edition may not be used for purposes other than those stated above.

1.4.3. SAP in its sole discretion may from time to time on SAP's Customer Support Website (available at https://support.sap.com) under http://support.sap.com/solutionmanager update the use cases for SAP Solution Manager Enterprise Edition under this Section.

1.4.4. SAP Solution Manager Enterprise Edition shall only be used during the term of the Agreement subject to the rights set forth herein and exclusively for Customer's SAP-related support purposes in support of Customer's internal business operations. The right to use any SAP Solution Manager Enterprise Edition capabilities under this Attachment 1 other than those listed above is subject to a separate written agreement with SAP, even if such capabilities are accessible through or related to SAP Solution Manager Enterprise Edition. Customer shall be entitled to allow any of its employees to use web self-services in the SAP Solution Manager Enterprise Edition during the term of the Agreement such as creating support tickets, requesting support ticket status, ticket confirmation and change approvals directly related to Customer IT Solutions.

1.4.5. Use of SAP Solution Manager Enterprise Edition may not be offered by Customer as a service to third parties; provided, third parties authorized to access Cloud Services under the Agreement may have access to SAP Solution Manager Enterprise Edition solely for SAP-related support purposes in support of Customer's internal business operations in accordance with the terms of the Agreement.

1.5. Other Components, Methodologies, and Content.

1.5.1. Process descriptions and process content that may be used as pre-configured test templates and test cases via the SAP Solution Manager Enterprise Edition. In addition, the SAP Solution Manager Enterprise Edition assists Customer's testing activities.

1.5.2. Tools and content for SAP Application Lifecycle Management (accessible via SAP Solution Manager Enterprise Edition and/or the Enterprise Support Solutions and/or the applicable Documentation for Enterprise Support Solutions and/or SAP's Customer Support Website) to help increase efficiency:

(i) Tools for implementation, configuration, testing, operations, and system administration.

(ii) Best practices, guidelines, methodologies, process descriptions and process content. This content supports the usage of the tools for SAP Application Lifecycle Management.

SAP AI Services and AI Units
Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies to AI Services and the use of SAP AI Units.

1. DEFINITIONS

1.1. **"AI Feature"** means any individual artificial intelligence capability that is part of an Eligible AI Service as described in the Documentation (as defined in the GTC).

1.2. **"Availability Period"** means, if applicable, each period starting on a Product Start Date and ending on the next Product End Date each as set forth for the AI Units in Schedule 1 in the Order Form or each Contract Year within the Initial Subscription Term.

1.3. "**Eligible AI Service**" refers to any AI service listed in the Eligible AI Services List. For purposes of this Supplement, "Cloud Service" means the Eligible AI Service utilized by Customer.

1.4. "**Eligible AI Services List**" means the means the then-current "SAP AI Services List" posted on the SAP Agreement Website under https://www.sap.com/about/agreements/policies/cloud-service-specifications.html?search=ai%20services%20list&sort=latest_desc.

1.5. "**Capacity Unit**" is the number of units available for the related Availability Period as specified for the AI Units under "Usage Metric Limitation/Volume" in Schedule 1 in the Order Form, if applicable.

1.5.1. **"Per-Unit Factor"** refers to the "AI Unit Conversion Factor" (as specified in the Eligible AI Services List) which will be determined based on actual use rounded up to the "Block Size" (as specified in the Eligible AI Services List) of an Active AI Feature.

1.6. **"Contract Year"** means a period of twelve (12) months with the first Contract Year starting on the Effective Date of the relevant Order Form.

1.7. "**Units of Measure**" are the types of metrics used to measure use of a particular AI Service (e.g., GB).

2. USAGE METRICS

2.1. The applicable Usage Metric is Capacity Unit. Customer may exercise the Capacity Units on Eligible AI Services.

3. ADDITIONAL TERMS

3.1. SAP may update the AI Services List from time-to-time with additional Eligible AI Services if and when they become generally available.

3.1.1. Any unused Capacity Units expire and are forfeited by Customer at the end of the current Availability Period and will not be available for use in any subsequent Availability Period.

3.2. **Pooling of Capacity Units**

3.3. Any Capacity Units will be pooled with all other AI Capacity Units that Customer receives from SAP ("Pooled Capacity Units").

3.3.1. If Customer has Pooled Capacity Units available, SAP will:

(a) Deduct applicable fees for the use of any Eligible AI Feature by Customer from those Pooled Capacity Units that expire first based on the corresponding Per-Unit Factor; and

(b) provide a monthly balance statement reflecting the use of any Eligible AI Feature by Customer for the preceding calendar month and the remaining balance of Pooled Capacity Units.

3.4. Customer may increase the amount of Pooled Capacity Units by executing an order form for additional AI Units.

3.5. **Adding and Removing AI Services**

3.5.1. SAP may add AI services and associated Per-Unit Factors to the Eligible AI Services List during the Subscription Term.

3.5.2. SAP may remove any Eligible AI Service from the Eligible AI Services List and any AI Feature from an Eligible AI Service by giving Customer 6 months' prior notice. SAP shall give such notice by email, through SAP For Me or another administrative dashboard provided by SAP. During the notice period, Customer can continue Activating, Deactivating and using any Eligible AI Service and any AI Feature included in such Eligible AI Service.

3.5.3. Thereafter, Customer may keep Activated and continue using such Eligible AI Service and AI Feature for the remainder of its then-current Subscription Term if the Eligible AI Service belongs to Group 1. This exception does not apply to any Eligible AI Service belonging to Group 2.

3.5.4. By default, all Eligible AI Services belong to Group 1, unless SAP has explicitly classified an Eligible AI Service as Group 2 in the Eligible AI Services List. Eligible AI Services categorized as Group 2 can be moved to Group 1 but not the other way round.

3.5.5. When utilizing an AI Service through another AI Service, Capacity Units will be consumed independently for each AI Service.

3.5.6. Customer may only use a quantity in blocks equal to or greater than the "Minimum Usage Requirement" if set forth in the Eligible AI Services List.

3.6. Each AI Service is subject to the applicable Service Level Agreement and Maintenance Windows and Major Upgrade Windows.

3.7. Where supplemental terms and conditions are available for an Eligible AI Service at http://www.sap.com/agreements-cloud-supplement, such supplemental terms and conditions shall apply to Customer's use of such Eligible AI Service.

3.8. Use of AI Services is subject to the applicable SAP AI Terms accessible at https://www.sap.com/about/trust-center/agreements.html ("**AI Terms**"). New AI Services added to the AI Services List are subject to the then-current AI Terms.

SAP AI Units
Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies to SAP AI Units.

1. USAGE METRICS

1.1. The Usage Metric for SAP AI Units is Capacity Unit in blocks of 100.

1.2. As defined in the Order Form, a Capacity Unit refers to the number of units available for a given Availability Period and includes a ratio of services consumed via SAP AI Units, calculated using the applicable Per-Unit Factor as set forth in the AI Features Guide.

1.2.1. The Capacity Unit consumption for each Eligible AI Service, as specified in the AI Features Guide, is measured using one of the methods below:

1.2.1.1. An "**Action**" means a distinct operation performed by an AI agent that is invoked and processed as a part of completing a task within an AI agent run. An AI agent run may be triggered by a human query or a system event, ending when a task is completed, tools and/or services are invoked, a workflow is completed, a response is received, or the interaction is terminated. An AI agent run may consist of one or more Actions.

1.2.1.2. A "**Record**" is an individual data object of supported file types ingested by the Active AI Service and/or available for retrieval.

1.2.1.3. A "**Request**" is a response or action that uses AI to retrieve information or perform tasks. The number of requests consumed is a measure of the time and effort per use of the Active AI Service.

1.2.1.4. A "**User**" is an individual authorized to use the Active AI Service.

2. AI FEATURES GUIDE

2.1. Capacity Units may be consumed on the Eligible AI Services. Eligible AI Services are listed in the AI Features Guide, which is hereby incorporated into the Agreement and accessible at: https://www.sap.com/ai-features-guide.

2.2. In the event that SAP adds new AI Services to the Eligible AI Services during Customer's Subscription Term ("**Updated Eligible AI Services**"): (a) Customer's use of such new AI Services will be subject to any applicable new terms in the Updated Eligible AI Services; and (b) any Customer use of such new AI Services will be deemed Customer's acceptance of the Updated Eligible AI Services, solely as applicable to such new AI Services. For purposes of clarification, all AI Services other than new Eligible AI Services will remain governed by the applicable AI Features Guide terms in effect under the Agreement prior to the Updated Eligible AI Services.

2.3. For Active AI Services embedded within Cloud Service, System Availability SLA, Maintenance Windows and Major Upgrade Windows applicable to the underlying Cloud Service shall apply.

2.4. If an Active AI Service has individual System Availability SLA or Maintenance Windows or Major Upgrade Windows that differs from the underlying Cloud Service, the applicable deviations are identified as follows:

2.4.1. System Availability SLA is specified in the AI Features Guide.

2.4.2. Maintenance Windows and Major Upgrade Windows are published on: https://support.sap.com/maintenance-windows.

3. ADDITIONAL TERMS

3.1. Use of AI Technology provided as part of SAP AI Units is subject to the SAP AI Terms, which are hereby incorporated into the Agreement and accessible at https://www.sap.com/about/trust-center/agreements.html.

SAP ARIBA, SAP BUSINESS NETWORK, AND FIELDGLASS CLOUD SERVICES SUPPLEMENTAL TERMS AND CONDITIONS

This Supplement is part of an Agreement for SAP products and services between SAP and Customer and applies to the SAP Ariba, SAP Business Network for Procurement, SAP Business Network for Supply Chain, and Fieldglass Cloud Services for which Customer is subscribed as set forth herein (the "**Cloud Service**"). Capitalized terms used in this Supplement but not defined herein have the meanings assigned to them in the applicable Order Form or Documentation. Unless an alternate Supplemental Terms and Conditions document is referenced in the applicable Cloud Service Order Form, this Supplement applies to all SAP Ariba, SAP Business Network for Procurement, SAP Business Network for Supply Chain, and Fieldglass Cloud Services as set forth herein whether or not referred to specifically in this Supplement.

PART 1 – SUPPLEMENTAL TERMS APPLICABLE TO ARIBA, SAP BUSINESS NETWORK, AND FIELDGLASS CLOUD SERVICES

1. CONSULTING SERVICES

Customer's initial subscription to each Cloud Service includes a standard Consulting Service package for the initial deployment of the Cloud Service, as applicable[1]. Such Consulting Service packages are not included with any additional, replacement, or renewal order of a Cloud Service to which Customer is already subscribed unless otherwise provided in the Order Form.

Standard Consulting Services for the initial deployment of applicable Cloud Services subscribed to in an Order Form between SAP and Customer referencing this Supplement are described in the deployment descriptions made available online by SAP, or as provided by SAP upon request. SAP provides these deployment services for the period stated in the deployment descriptions or applicable exhibit(s) or, if no period is stated, then for the initial Subscription Term. Any included deployment services, or other Consulting Services included in a Cloud Service Order Form between SAP and Customer referencing this Supplement, shall be deemed part of the Cloud Service for the purposes of the Cloud Service conformity and skill warranty in the GTC. The standard Consulting Service package included in Customer's initial subscription to each applicable Cloud Services expressly excludes any custom integration services or other custom development effort. Customer may purchase additional Consulting Services beyond the scope identified in the deployment description(s) for the initial deployment subscribed to Cloud Services by entering into a separate mutually agreeable written services order form or statement of work with SAP. Customer will reimburse SAP for all appropriately documented travel and related expenses incurred by SAP in performing any Consulting Services.

2. AGGREGATED USAGE

Where any Cloud Service is identified or marked in the Order Form as an 'aggregated' Usage Metric Limit over the Subscription Term (or 2 or more years thereof), SAP has agreed to an aggregated Usage Metric for the

[1] The following Cloud Service subscriptions do not include a standard Consulting Service package for the initial deployment of the Cloud Service: SAP Ariba Buying, additional site add on; SAP Ariba Buying and Invoicing, additional site add on; Buyer Membership (open adapter); Invoice Conversion Services; SAP Business Network Asset Collaboration, SAP Business Network Freight Collaboration, SAP Business Network Global Track and Trace, SAP Business Network Material Traceability, SAP Business Network Supply Chain Collaboration, foundation option, SAP Business Network Commerce Automation, deployment option for tax invoicing, localization for Mexico; SAP Ariba Strategic Sourcing, supplemental site add-on; SAP Ariba Procurement, supplemental site add-on; SAP Signature Management by DocuSign; SAP Signature Management by DocuSign, Fieldglass; SAP Fieldglass Contingent Workforce Management, flexible edition; SAP Fieldglass Services Procurement, flexible edition; SAP Fieldglass Contingent Workforce Management, edition for SAP ERP, flexible edition; SAP Fieldglass Services Procurement, edition for SAP ERP, flexible edition; SAP Fieldglass Contingent Workforce Management, partner edition (PAYG); SAP Fieldglass Services Procurement, partner edition (PAYG); SAP Fieldglass Worker Profile Management, flexible edition. For clarity, Next-gen Cloud Services do not include Consulting Services for the initial deployment of the Next-gen Cloud Service.

particular Cloud Service over the initial Subscription Term only. There is no discount, reduction, refund or credit if the Usage Metric Limit is not utilized in any year or over the Subscription Term. For any 12 month renewal, the applicable Usage Metric Limit for the Cloud Service shall be annualized (subject always to excess use as provided in the Order Form) for the Renewal Term, unless otherwise agreed in a signed writing with SAP. The Annualized Usage Metric Limits may be set out in the Order Form as a reference.

3. LIMITED AVAILABILITY OF SELECT FEATURES

From time to time, subject to the requirements presented by SAP at the time, customer may elect to participate in a limited availability program enabling use of a new feature for the cloud service prior to general production availability. SAP may elect at its own discretion to remove any limited availability feature from use and/or not release it into the cloud service.

4. EMBEDDED LAUNCH ACTIVITIES

Embedded launch activities are included for a first-time subscription to the following Cloud Services. The scope and details of the Embedded Launch Activities are described in the Embedded Launch Activities Specification, accessible at https://www.sap.com/about/agreements/policies.html.

SAP Strategic Procurement
SAP Ariba Sourcing
SAP Ariba Contracts
SAP Ariba Supplier Lifecycle and Performance
SAP Ariba Supplier Risk
SAP Ariba Buying
SAP Ariba Buying and Invoicing
SAP Ariba Catalog
SAP Fieldglass Contingent Workforce Management, flexible edition
SAP Fieldglass Contingent Workforce Management, edition for SAP ERP, flexible edition
SAP Fieldglass Services Procurement, flexible edition
SAP Fieldglass Services Procurement, edition for SAP ERP, flexible edition
SAP Fieldglass Worker Profile Management, flexible edition

PART 2 – SUPPLEMENTAL TERMS APPLICABLE TO FIELDGLASS CLOUD SERVICES ONLY

1. USAGE METRICS

Usage Metrics for the SAP Fieldglass Cloud Services, to the extent referenced in the Order Form, are defined as follows:

1.1. **"Spend"** is the total expenditures processed via the Cloud Service.

1.2. "**Resource**" is any authorized individual or physical asset accessing, being managed and/or monitored via the Cloud Service. This metric may also be referred to as "Worker Profile". For purposes of clarity, this Usage Metric is a monthly allotment, unless otherwise specified in the Order Form.

2. CLOUD SERVICE DESCRIPTION

Customer has subscribed to one or more of the Cloud Services described below in an Order Form referencing this Supplement.

2.1. **SAP Fieldglass Contingent Workforce Management.** SAP Fieldglass Contingent Workforce Management provides functionality for the procurement, engagement, and payment of contingent labor (e.g. job postings, approvals, candidate submissions, onboarding, off-boarding, invoices, and worker evaluations).

2.2. **SAP Fieldglass Services Procurement.** SAP Fieldglass Services Procurement provides functionality for the procurement, engagement, and payment of services providers (e.g. project requisitions, vendor responses, on-boarding, off-boarding, tracking of external resources working on one or more projects, processing and allocation of a resource's time, invoicing, and project evaluation).

2.3. **SAP Fieldglass Worker Profile Management.** SAP Fieldglass Worker Profile Management allows Customers to track and manage all non-traditional workers who have no time sheet activity and are not otherwise tied to a job posting or SOW in the Cloud Service for headcount, reporting and onboarding/offboarding tasks.

2.4. **analytics add-on for SAP Fieldglass solutions.** analytics add-on for SAP Fieldglass solutions provides additional reporting capabilities for the measurement, tracking and benchmarking of key performance indicators and market intelligence insights for customers of SAP Fieldglass Contingent Workforce Management and SAP Fieldglass Services Procurement.

2.5. **SAP Fieldglass Contingent Workforce Management, essentials edition.** SAP Fieldglass Contingent Workforce Management, essentials edition provides functionality for the hiring and engagement of contingent labor (e.g. job postings, job posting distribution candidate submissions, resume assessment, onboarding and offboarding).

3. SUPPORT

Support for the Cloud Service is provided in accordance with the Support Policy for SAP Cloud Services referenced in the Order Form. The support levels available for SAP Fieldglass are SAP Enterprise Support or Preferred Success. Preferred Care is not available. SAP Fieldglass Enterprise Support (see https://support.fieldglass.com) provides support for general questions, system navigation inquiries, general troubleshooting issues and P1 escalation management. In addition, SAP Fieldglass Enterprise Support provides release updates, high level program consultation, standard release notes and general product roadmap updates.

4. SUPPLIER TERMS

Prior to accessing the Cloud Service, Suppliers will be required to: (i) register through the Cloud Service; (ii) enter an agreement with SAP; and, if applicable, (iii) become enabled, subject to the applicable terms of use, on the regional network designated by SAP for routing documents between Customer and Suppliers. "Supplier" or "Contractor" means a worker or agency engaged by Customer through the Cloud Service.

5. DATA

Customer may not, and shall ensure its Authorized Users do not, submit the following types of information to the Cloud Service or solicit this information from trading partners: (i) non-public financial account numbers associated with individual persons (e.g. personal credit card or banking account numbers), (ii) information regulated under the International Traffic in Arms Regulations, (iii) without the express written consent of SAP, technical data restricted under U.S. or German law for export purposes, and (iv) medical records or health care claim information associated with individuals, including claims for payment or reimbursement for any type of medical care for an individual, with the exception of vaccine tracking information. Customer may not enter or solicit any data in the Cloud Service that impose different or additional obligations on SAP beyond those set out in the Agreement.

6. SANDBOX ENVIRONMENTS FOR SAP FIELDGLASS SOLUTIONS

Sandbox environments for SAP Fieldglass solutions are non-productive environments available for purchase by customers to configure, model and/or promote new functionality features or inbound/outbound integration configurations within such sandbox environment (hereafter, "**Sandbox Environments**"), prior to implementing or enabling the configuration changes in the productive Cloud Service. Sandbox Environments are only available for customers hosted in US or EU production data centers and will be deployed and hosted in hyperscaler landscapes located in the same region as Customer's production environment(s).

For purpose of clarification, Sandbox Environments are non-production environments and therefore the Service Level Agreement for SAP Cloud Services and Data Processing Agreement for SAP Cloud Services do not apply, and Customer is responsible for evaluating its compliance with applicable data protection or other laws related to duplication of any personal data or other regulated or restricted data within a Sandbox Environment. Additional

information on the scope, limitations and restrictions on Sandbox Environments are set forth in the Documentation for SAP Fieldglass solutions.

PART 3 – SUPPLEMENTAL TERMS APPLICABLE TO ARIBA AND SAP BUSINESS NETWORK CLOUD SERVICES ONLY

1. DOCUMENTATION AND VERSIONING

1.1. **Overview.** The technology features included in each Current-gen Cloud Service (as defined below) for SAP Ariba and SAP Business Network for Procurement and SAP Business Network for Supply Chain are described in the Solutions Description Guide for SAP Ariba and SAP Business Network solutions, as updated from time to time (the "**Solution Description Guide**"). SAP also provides Next-gen versions of certain Cloud Services (as defined below). The technology features included in Next-gen Cloud Services are described in the applicable Feature Scope Descriptions, as updated from time to time (each, a "**Feature Scope Description**"). This section explains the rules for determining which of these documents governs a Customer's subscription.

1.2. **Governing Documentation and Cloud Service Version**

1.2.1. **Order Form.** If the Customer's Order Form, including any amendment to the Order Form, includes an explicit reference to the Feature Scope Description for Next-gen versions of a particular Cloud Service, Customer is subscribed to the Next-gen version of such Cloud Service, and the applicable Feature Scope Description governs the affected Cloud Service(s).

1.2.2. **Transition Acknowledgement.** If the Customer executes a Transition Acknowledgement, Customer is subscribed to the Next-gen version of the Cloud Service(s) identified in the Transition Acknowledgement and the applicable Feature Scope Description governs the affected Cloud Service(s) as of the effective date of the Transition Acknowledgement.

1.2.3. **Default.** In all other cases, the Solution Description Guide governs, and Customer is subscribed to a Current-gen Cloud Service

1.3. **No Mixing of Generations**. The Customer may not combine features, entitlements, or capabilities across Current-gen and Next-gen versions of a Cloud Service.

1.4. **Relationship to Other Documentation.** Nothing in this Section modifies the functional content of the Solution Description Guide or the Feature Scope Description.

1.5. **Definitions.**

1.5.1. **Current-gen.** "Current-gen" means the version of an applicable Cloud Service whose functional scope is described in the Solution Description Guide for SAP Ariba, SAP Business Network for Procurement, and SAP Business Network for Supply Chain, as updated from time to time.

1.5.2. **Next-gen.** "Next-gen" means the version of an applicable Cloud Service whose functional scope is described in the applicable Feature Scope Description, as updated from time to time.

1.5.3. **Transition Acknowledgement.** "Transition Acknowledgment" means the written acknowledgment executed by the Customer to transition one or more Cloud Services from Current-gen to Next-gen that (i) records Customer's final election to transition one or more Cloud Services from Current-gen to Next-gen, and (ii) explicitly references the Feature Scope Description for Next-gen versions of the Cloud Service. Transition Acknowledgements may also reference any applicable transition services. The terms of the Transition Acknowledgement apply in addition to this Supplement.

2. SAP ARIBA PAYABLES

The SAP Ariba Payables (including the payment, supply chain finance, and discounting services) Cloud Service have regional limitations, may require agreements with third party service providers, and are subject additionally to the SAP Ariba Payables Supplemental Terms and Conditions found here: www.sap.com/agreements-cloud-supplement-ariba-payables (as updated from time to time).

3. SAP ARIBA AND SAP BUSINESS NETWORK USAGE METRICS.

Usage Metrics for the SAP Ariba, SAP Business Network for Procurement, and SAP Business Network for Supply Chain Cloud Services, to the extent referenced in the Order Form, are defined as follows:

3.1. **"Document"** is a record of commercial transactional data managed via the Cloud Service.

3.2. **"Entitlements Package"** is a set of defined entitlement, as set forth in the respective Product Supplement, Services Description Guide or Services Use Description.

3.2.1. For SAP Business Network Supply Chain Collaboration, foundation option, the Usage Metric is Spend.

3.3. **"Spend"** is the total expenditures processed via the Cloud Service.

3.3.1. For SAP Ariba Spend Analysis, the Usage Metric is Spend and means each twelve (12) month set of accounts payable, travel & expense, and/or purchasing card data provided to SAP for data enrichment processing through the Cloud Service.

3.3.2. For SAP Ariba Sourcing and Procurement bundle, the Usage Metric is Spend processed by the SAP Ariba Buying and Invoicing Cloud Service.

3.3.3. For experience management bundle for supply chain collaboration, the Usage Metric is Spend in blocks of $10 million USD converted to local currency using SAP standard exchange rates, which will be made available to Customer upon request.

3.4. **"Flat Fee"** is a fixed fee for the Cloud Service.

3.4.1. For SAP Business Network Planning Collaboration, foundation option, the Usage Metric is Flat Fee for unlimited Documents and 20 Suppliers, subject to the limitations in the deployment description for SAP Business Network Planning Collaboration, foundation option.

3.5. **"Supplier"** is each individual data object for a supplier account managed via the Cloud Service.

3.6. "**Tenant**" is a customer-specific instance of the Cloud Service.

3.7. "**User**" is any individual authorized to access the Cloud Service. For this Cloud Service, individuals with unique active profiles are counted.

3.8. **"% of Net Recurring Fee**" is the stated percentage multiplied by the stated net recurring fee.

4. DATA

Customer may not, and shall ensure its Authorized Users do not, submit the following types of information to the Cloud Service or solicit this information from trading partners: (i) non-public government identification numbers or financial account numbers associated with individual persons (e.g. U.S. Social Security numbers, national insurance numbers, driver's license numbers, or personal credit card or banking account numbers), (ii) medical records or health care claim information associated with individuals, including claims for payment or reimbursement for any type of medical care for an individual, (iii) information regulated under the International Traffic in Arms Regulations, (iv) without the express written consent of SAP, technical data restricted under U.S. or German law for export purposes, and (v) data designated as "Sensitive" or "Special Category" or the like requiring extra protective measures under the applicable Data Protection Law (as defined in the Data Processing Agreement).

5. ADDITIONAL ARIBA TERMS.

5.1. **SAP Ariba Spot Buy Catalog Cloud Service and Feature.** In utilizing the SAP Ariba Spot Buy Catalog Cloud Service or using the SAP Ariba Spot Buy feature, Customer agrees to participate in the SAP Ariba Spot Buy Program in accordance with the terms for buyers found on the SAP Ariba Spot Buy program Site, as updated from time to time, (currently at https://connect.ariba.com/AribaSpotBuy).

5.2. **SAP Business Network Supply Chain Collaboration ("SCC") and SAP Business Network Commerce Automation ("Commerce Automation"), buyer paid supplier fees option.** During the then-current Subscription Term for SCC, SAP shall not charge any of Customer's suppliers for transaction fees or annual

membership fees related to fulfillment of orders and invoices on the SAP Business Network for Trading Partners arising from their relationship or transactions between Customer and such suppliers originating through SCC. During the then-current Subscription Term for Commerce Automation with buyer paid supplier fees option, SAP shall not charge Customer's designated suppliers for transaction fees or annual membership fees related to fulfillment of orders and invoices on the SAP Business Network for Trading Partners arising from their relationship or transactions between Customer and such suppliers originating through Commerce Automation. Suppliers will still be charged for use of SAP Business Network Discovery if they elect to use that service or other optional services SAP makes available to them.

5.3. **SAP Ariba APIs, extension tools and Integration Software.** Some of the Cloud Services include the ability to use application programming interfaces, integration adapter software, extension capabilities and system authorization codes (together referred to as "**APIs**") made available by SAP for the creation of applications for integration with the Cloud Services by Customer (a "**Customer Application**").

(i) Use of APIs is subject to restrictions stated in the Documentation and access to and testing of some APIs utilizes the regional SAP Ariba Developer Portal applicable to the SAP Ariba data center that Customer elects to use (See https://developer.ariba.com/api). Customer must accept any separate terms and conditions presented upon download or access to the regional platform to use the portal and APIs.

(ii) The APIs are SAP proprietary and Confidential Information and may not be modified by Customer.

(iii) SAP may require certification, security assurances or other reasonable validation steps regarding the Customer Application(s) developed with the API prior to enabling Customer to utilize such application in a production capacity to exchange information with the Cloud Services.

(iv) Customer is fully responsible for ensuring that the Customer Application remains compatible and interoperable with the Cloud Service and does not unreasonably impair, degrade or reduce the performance or security of the Cloud Service.

(v) The System Availability SLA will apply to API's, unless specified otherwise in the Documentation for a specific API.

(vi) For the avoidance of doubt, data submitted to the Cloud Services via an API or a data feed from an authorized third-party service that either originates with Customer or is provided subject to an agreement between Customer and a third-party database provider, shall be considered Customer Data under the Agreement.

5.4. **Data-as-a-Service Elements.** The following terms apply to SAP Ariba Spend Analysis Cloud Service, SAP Ariba Contract Management, SAP Ariba Sourcing and SAP Ariba Supplier Risk Cloud Service related to the information provided to Customer by SAP, which may include news articles, supplier corporate information, ("**Database Information**"). All Database Information provided to Customer is proprietary information of SAP or its third-party information providers, may not be relicensed or resold and is subject to further restrictions set forth in the Documentation. The Database Information is provided "as is" without warranty of any kind, including but not limited to warranties as to the accuracy, completeness or timeliness of the Database Information, and SAP advises Customer to independently verify such Database Information. SAP and its providers shall not be liable for any loss arising out of or in any way relating to the Database Information. SAP's Providers are third party beneficiaries of these terms. SAP and its Providers (i) shall not be liable to Customer for any loss or injury arising out of or in any way relating to the Database Information and (ii) will not be liable for consequential, incidental, special, punitive or other indirect damages.

5.5. **Optional Add-on Services.** Customer may subscribe to certain optional add-on services or programs, such as SAP Business Network, buyer paid supplier fees option". If so, any Usage Metrics or terms not stated in this Supplement will be stated in the Order Form or Documentation.

5.6. **Data Retention – SAP Business Network.** Customer Data processed for SAP Business Network for Procurement and SAP Business Network for Supply Chain on the SAP Business Network may be retained on the SAP Business Network subject to the confidentiality provisions of the Agreement and the obligations under the Data Processing Agreement.

5.7. **Processing Services for Payment and Supply Chain Finance.**

5.7.1. **Separate Provider.** If Customer enables one or more of the below defined payment capabilities in the SAP Business Network for Procurement and SAP Business Network for Supply Chain on the SAP Business Network (excluding AribaPay), such payment services are provided by third party payment processors under separate agreements between Customer and those third parties. SAP does not perform and is not responsible for the payment processing services, nor acts or omissions of the third-party payment processors under the separate agreements. Customer agrees that any third-party payment processor's use of Customer Data is governed by the separate agreement and the third-party payment processor's data use and data privacy policies. By enabling the payment services provided by third-party payment processors, Customer instructs SAP to transfer Customer Data (including personal data) to the third-party payment processor. SAP's obligations for the Cloud Service, exclusive of the payment processing services, are in accordance with the Agreement. SAP and the third-party payment processors are under no obligation to assist with or resolve disputes between Customer and Customer's suppliers, with respect to payment transactions.

5.7.2. **Payment Processing Services.** For payment processing services other than AribaPay:

- If Customer enables the payment capability, then the "processing services" consist of payment processing services to settle payments between Customer and Customer's suppliers, including every function of the payment capability related to the processing or transmission of payments or funds, the provision of any payment intermediary-related services, the debiting or crediting of bank accounts, holding funds, processing payments, issuing checks, holding account numbers, and/or otherwise acting as a payment processor.
- Customer is responsible for providing accurate information in any payment instruction.
- Once enabled, SAP's role for the payment capability is to forward payment information from Customer to the payment processor and return status information to the Customer regarding the payments.

5.7.3. **Tax Treatment.** With respect to the fees payable by Customer to SAP for use of the payment capability, Customer will be treated as the payor with respect to SAP for tax purposes, notwithstanding the payment processing services provided by the payment processor or supply chain finance processor. This will not include features which are agreed to by Customer under its agreement with the payment processor payment and that are paid directly to the payment processor.

5.8. **Staging Environments for SAP Ariba Strategic Sourcing, supplemental site add-on. SAP Ariba Procurement, supplemental site add-on, and sandbox environment for SAP solutions**. Supplemental realms used as staging environments for SAP Ariba Strategic Sourcing and SAP Ariba Procurement are non-productive environments available to Customers to configure, model and/or promote new functionality features or integration configurations within such staging environments ("**Staging Environment")**, before implementing the changes in the productive Cloud Service. Staging Environments are deployed in hyperscaler landscapes located in the EU and will reflect the same hosting architecture as production environments. For clarification, Staging Environments are non-production environments, and therefore the Service Level Agreement for SAP Cloud Services and Data Processing Agreement for SAP Cloud Services do not apply. Customers are responsible for evaluating compliance with applicable data protection or other laws related to the duplication of personal data or other regulated data within a Staging Environment. Additional information on the scope, limitations and restrictions on Staging Environments is set forth in the Documentation for SAP Ariba solutions.

5.9. **SAP Business Network Discovery**. The SAP Business Network connects businesses seeking to acquire products or services ("**Buying Trading Partner**") with businesses offering products or services ("**Selling Trading Partner**") (together, "**Trading Partners**"), for collaboration using SAP applications, networks and third-party services (the "**SAP Business Network**"). The SAP Business Network Discovery Service ("**Discovery Service**") is an optional service on the SAP Business Network that enables Buying Trading Partners to identify Selling Trading Partners via search, recommendations or Posting matches. Postings submitted to the Discovery Service ("**Postings**") may only be initiated by a Buying Trading Partner interested in acquiring a product or service from a Selling Trading Partner.

5.9.1. **Postings and Responses.**

5.9.1.1. **Buying Trading Partner Postings**. RFQ and RFI Postings (including, but not limited to title, description, territories, company name, commodities, project amount and all attachments) submitted by a Buying Trading

Partner may be forwarded by SAP to, or viewed by, any user of the Discovery Service, unless "Private" Posting visibility is selected by the Buying Trading Partner.

5.9.1.2. **Selling Trading Partner Responses.** The details of a Selling Trading Partner's response to a Posting ("**Response**"), including bid amount, will not be shared by SAP with users other than the Buying Trading Partner that submitted the applicable Posting.

5.9.2. **Representations Regarding Trading Partners.** SAP does not endorse any Trading Partners and does not make any representations or warranties with respect to any Selling Trading Partner or their products, services or conduct. SAP is not a party to any transaction between Trading Partners on the SAP Business Network.

5.9.3. **Profile and Business Contact Information**. Your profile information is part of the SAP Trading Partner database. You should not submit business contact information to the SAP Business Network or the Discovery Service that you wish to keep private.

SAP Business Data Cloud

Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies solely to SAP Business Data Cloud, which is made up of SAP Business Data Cloud, core capacity, SAP Business Data Cloud Connect and SAP Business Data Cloud Intelligent Packages (collectively the "Cloud Service"). The Cloud Service is subject to the SAP Business Data Cloud Service Description Guide (the "**Service Description Guide**"), the terms of which are incorporated into this Supplement by reference and available at the following link: https://www.sap.com/about/trust-center/agreements/cloud/cloud-services.html?sort=latest_desc&tag=agreements:product-use-support-terms/service-description-guides.

1. DEFINITIONS

1.1. "**Add-on**" means any development that adds new and independent functionality to the SAP BW Capacity Services (as defined below), but does not modify existing SAP functionality, and is developed using SAP application programming interfaces or other integration points or other SAP code that allows other software products to communicate with or call on the SAP BW Capacity Service.

1.2. "**Additional Add-on**" means any Add-on that is published by SAP as an SAP certified Add-on in the https://www.sap.com/dmc/exp/sap-certified-solutions/#/solutions.

1.3. "**Capacity Service(s)**" means the services identified in the Service Description Guide, as may be updated by SAP from time-to-time.

1.4. "**Capacity Unit**" is a ratio of services consumed via the Capacity Service and is calculated as set forth in this Supplement.

1.5. "**Capacity Units of Measure**" is a block used to measure consumption of a Capacity Service.

1.6. "**Capacity Unit Value**" is the numerical value assigned to a specific Capacity Service that, when multiplied by the number of used Capacity Units of Measure, results in the consumed Capacity Units.

1.7. "**Customer ABAP Add-on**" means an Add-on developed in the ABAP programming language and developed by or on behalf of Customer without SAP's participation.

1.8. "**Data Source(s)**" means certain software product(s) and/or certain SAP database instance(s) for which Customer has secured an enumerated license that specifically lists or names the permitted activities or actions allowed under a valid license agreement including but not limited to, for example, SAP's General Terms and Conditions for SAP Software and Support agreement.

1.9. **"Modification"** means (i) a change to the delivered source code or metadata; or (ii) any development, other than a change to the delivered source code or metadata, that customizes, enhances or changes existing functionality of the SAP BW Capacity Services.

1.10. "**SAP-provided Add-on**" means any Add-on that is not a Customer ABAP Add-on and is an Add-on made available for the SAP BW Capacity Services.

1.11. "**Data Product(s)**" means enriched data or enriched Customer Data, where enrichment is any type of reorganization, semantics, summarization, reporting or metadata. Data Products include, but are not limited to, data described by metadata and/ or semantics that is consumable outside the SAP Business Data Cloud Cloud Service.

2. GENERAL TERMS

2.1. Any Capacity Service provided as a non-productive environment, such as a test tenant, or for quality assurance, may only be used for non-productive development and testing.

2.2. For the SAP Analytics Cloud and the SAP Datasphere Capacity Services, the Service Level Agreement for Cloud Services is amended by deleting the words "Cloud Service" and replacing them with "Capacity Service".

2.3. In the event that SAP adds new services to the Cloud Service, during Customer's Subscription Term: (a) SAP will release a new Supplement and/or a new Service Description Guide reflecting such new services ("**Updated Supplement**"); (b) Customer's use of such new services will be subject to any applicable new terms in the

Updated Supplement; and (c) any Customer use of such new services will be deemed Customer's acceptance of the Updated Supplement, solely as applicable to such new services. For purposes of clarification, all services other than new services will remain governed by the applicable Supplement(s) and Service Description Guide(s) in effect under the Agreement prior to the Updated Supplement and Service Description Guide.

2.4. For clarification, in Schedule 1 of the Order Form, the clause that reads "For Subscription Cloud Services, Usage Metric Limitation/Volume shows the maximum quantity that Customer may use over a 12-month period." includes a drafting error and instead "12-month" should be replaced by "**1-month**".

2.5. **EU Access.** The Cloud Service is EU Access eligible as indicated in the Service Description Guide.

2.6. **Deprecation of Capacity Services**

2.6.1. SAP may remove certain Capacity Services from the Cloud Service by giving Customer 6 months' prior notice ("**Removed Capacity Service(s)**"), by email, through SAP For Me or another SAP administrative dashboard.

2.6.2. During the notice period, Customer may continue using the Removed Capacity Service. After the expiration of the notice period, the following applies:

2.6.2.1. Group 1 Removed Capacity Services**:** Customer may continue using the Removed Capacity Service for the remainder of the Subscription Term.

2.6.2.2. Group 2 Removed Capacity Services**:** Customer will no longer have access to these Removed Capacity Services.

2.6.3. By default, all Capacity Services belong to Group 1, unless SAP has explicitly classified Capacity Services as Group 2 herein or in the Service Description Guide.

2.6.4. The SAP Business Data Cloud Connect Capacity Services are automatically classified as Group 2.

2.6.5. SAP may reclassify Capacity Services from Group 2 to Group 1, but not from Group 1 to Group 2.

2.7. **Data Extraction / APIs**

2.7.1. APIs and similar connectors, tools, or interfaces developed for or by SAP or its affiliated companies ("**SAP APIs**") may only be used to extract data from the Cloud Service as described in the Documentation for the respective SAP APIs. The use of SAP APIs to extract data from the Cloud Service to third-party applications or products (e.g. non-SAP software, data warehouses or data lakes) is not permitted, unless this is explicitly described as a function of the SAP API in the Documentation for the SAP API.

2.7.2. Customer and third-party applications (e.g. APIs that are not SAP APIs) may not be used to extract data from the Cloud Service.

2.7.3. SAP may verify whether access of the Cloud Service via API(s) originates from SAP software. It is not permitted to circumvent this authentication, including, but not limited to, using technical means that identify a third-party application or product as SAP software during authentication.

2.8. **AI Terms.** Artificial intelligence ("**AI**") features and technologies, that are made available under the Agreement, are subject to the SAP AI Terms available at the following (or a successor) link: https://www.sap.com/about/trust-center/agreements.html.

2.9. No Waiver. SAP's failure to enforce any provision of this Agreement shall not be construed as a waiver of SAP's right to enforce such provision at any later time.

3. ADDITIONAL TERMS: SAP BUSINESS DATA CLOUD CONNECT CAPACITY SERVICES

3.1. The SAP Business Data Cloud Connect Capacity Service is made up of a collection of Capacity Services that are offered under SAP Business Data Cloud ("**Third-Party Connector(s)**"). Customer may only use Data Products within SAP Business Data Cloud and/or make them available to Third-Party Connectors' systems via the SAP Business Data Cloud Connect Capacity Services.

3.2. Data Products may only be used for Customer's own internal business purposes.

3.3. Customer may allow Third-Party Connectors to temporarily store or materialize Data Products on such Third-Party Connectors' systems solely for performance optimization purposes. For the avoidance of doubt,

Customer may not allow Third-Party Connectors' systems to distribute Data Products to systems other than SAP Business Data Cloud.

3.4. Customer acknowledges SAP's ownership of intellectual property rights in Data Products and is licensed to use the Data Products in the scope of grant in this Section. All rights not expressly provided to Customer are reserved to SAP.

3.5. Customer's use of Third-Party Connectors constitutes consent to disclose and to permit Third-Party-Connectors' system usage and operations information between SAP and applicable Third-Party Connectors relating to Customer's use of this SAP Business Data Cloud Connect Capacity Services and usage of Data Products within the Third-Party Connector's systems, including identifying Customer in connection with such information.

3.6. Customer acknowledges that SAP has direct relationships with each third-party Capacity Service provider under this Section and agrees that in the event that such relationship terminates, SAP reserves the right to terminate Customer's right to use such Third-Party Connectors.

4. ADDITIONAL TERMS: SAP BUSINESS DATA CLOUD INTELLIGENT PACKAGES CLOUD SERVICES

4.1. Customer must have a current subscription to the SAP Business Data Cloud, core capacity in order to use any of the SAP Business Data Cloud Intelligent Packages listed in the Service Description Guide.

4.2. Provided Customer has a current subscription to SAP HANA Cloud, Customer may consume Data Products solely within SAP HANA Cloud and as otherwise permitted under the Section 3.1.

5. ADDITIONAL TERMS: SAP DATABRICKS CAPACITY SERVICES

5.1. Use of the SAP Databricks Capacity Services is subject to the terms of this Supplement and the SAP Databricks Capacity Services terms in the applicable Order Form under which SAP Business Data Cloud, core capacity is subscribed to.

5.2. The Service Level Agreement for Cloud Services, referenced in the Order Form, applies to the SAP Databricks Capacity Service, except as set forth below.

5.2.1. "**Databricks Gateway**" means the infrastructure connecting Customer with the SAP Databricks Capacity Services.

5.2.2. "**Downtime**" is the total minutes in the Month during which SAP Databricks Capacity Services does not respond to a request from the Databricks Gateway, excluding Excluded Downtime. SAP Databricks Capacity Services are considered to "not respond" for a given Workspace for a minute, if all continual attempts within the minute to establish connectivity between the Workspace and the Databricks Gateway fail.

5.2.3. "**Excluded Downtime**" means the total minutes in the Month attributable to a Maintenance Window; or unavailability caused by factors outside of SAP's reasonable control, such as unpredictable and unforeseeable events that could not have been avoided if reasonable care had been exercised. For clarity, such events include cloud/hyperscaler or internet service provider outages and services interruptions that cannot be reasonably worked around (such as region-wide outages).

5.2.4. "**Maintenance Window**" is a pre-announced period when the SAP Databricks Capacity Services are not available due to scheduled maintenance and upgrades, as notified by SAP, who will provide notice to subscribed Customers of such periods at least 72 hours in advance (such notification will be through SAP Customer communication channel(s), such as SAP for Me), and each scheduled maintenance period will last a maximum of 60 minutes.

5.2.5. "**Month**" means each full calendar month. The SLA is only applicable to full Months.

5.2.6. "**System Availability SLA**" means 99.93% System Availability Percentage during each Month for the production version of the SAP Databricks Capacity Service and calculated in accordance with the formula defined under System Availability Percentage.

5.2.7. "**Workspace**" means an SAP Databricks Capacity Service environment.

6. ADDITIONAL TERMS: SAP BW NETWEAVER CLOUD PRIVATE EDITION AND SAP BW/4HANA CLOUD PRIVATE EDITION CAPACITY SERVICES ("SAP BW CAPACITY SERVICES")

6.1. The provisions in Section 6 apply to SAP BW Capacity Services and SAP Master Data Governance Capacity Services.

6.2. **SAP HANA, runtime edition**

6.2.1. SAP HANA, runtime edition ("**runtime edition**") is a runtime database included in certain SAP BW Capacity Services. The runtime edition includes the components set forth in Sections 6.1.2. and 6.1.3. The runtime edition and said components may only be used in conjunction with Customer's use of the SAP BW Capacity Services.

6.2.2. SAP HANA PLATFORM EDITION (includes):

(a) SAP HANA Rules Framework;

(b) SAP HANA, data privacy option;

(c) SAP HANA, predictive option;

(d) SAP HANA, spatial and graph option;

(e) SAP HANA, search and text option;

(f) SAP HANA, smart data quality;

(g) SAP Smart Data Integration; and

(h) SAP HANA, native storage extension.

6.2.2.1. The SAP HANA PLATFORM EDITION includes SAP HANA Studio, SAP HANA Cockpit and SAP Web IDE components. All data modeling, distribution, creation and extension of data structures, including tables and virtual tables via SAP HANA smart data access used in the runtime edition must be performed via the SAP BW Capacity Services. Use of SAP Smart Data Integration is limited solely to loading data into the runtime edition or the SAP BW Capacity Services. Data may be loaded from an appropriately licensed Data Source via SAP Smart Data Integration or via the SAP BW Capacity Services. SAP Smart Data Integration may also be used with SAP HANA smart data access in a data federation scenario. Any bypass or circumvention of access restrictions is strictly prohibited.

6.2.3. Use of the SAP HANA Studio, SAP HANA Cockpit, SAP Web IDE components, and SAP Business Application Studio is limited solely to administering, monitoring and creating custom views for the runtime edition database instance. All reporting must be performed via the SAP BW Capacity Service or via custom views created using SAP HANA Studio, SAP Web IDE, or SAP Business Application Studio. Such custom views may be accessed by SAP business intelligence tools. Use of SAP Web IDE may require an additional infrastructure subscription and is limited to the creation of views for reporting purposes only.

6.2.4. The optional, limited use of the following on-premise components: SAP Data Integrator, SLT, SAP HANA Studio, and SAP HANA Cockpit. Use of SAP Data Integrator and SLT is limited solely to loading data into the runtime edition or the SAP BW Capacity Service.

6.2.5. Customer is expressly prohibited from performing the mass extraction of any data, except where such data extraction is explicitly permitted via the use of licensed SAP tools, such as, but not limited to, the SAP Data Services and SLT. Such data may only be extracted to and consumed by one or more of the following:

(a) SAP HANA, enterprise edition;

(b) SAP HANA, standard edition;

(c) SAP Cloud Platform, SAP HANA service;

(d) SAP HANA Cloud;

(e) SAP HANA, EE Cloud; and

(f) SAP Datasphere Capacity Services.

6.3. **Disaster Recovery**

6.3.1. Subject to this Section and Customer's subscription to the SAP S/4HANA Cloud, disaster recovery, private edition Capacity Service, Customer is eligible for the SAP BW Capacity Services Disaster Recovery services described in the document "Disaster Recovery Services and Customer Invoked Failover Services for Private Cloud Edition Services, Tailored Option Services, and SAP BW Capacity Services Service Description Documentation", available at: https://www.sap.com/about/agreements/policies/hec-services.html?sort=latest_desc&search=disaster%20recovery&tag=language:english.

6.3.2. To be eligible for the 4-hour recovery time objective services ("**RTO**") described in the document "Disaster Recovery Services and Customer Invoked Failover Services for Private Cloud Edition Services, Tailored Option Services, and SAP BW Capacity Services Service Description Documentation", available at: https://www.sap.com/about/agreements/policies/hec-services.html?sort=latest_desc&search=disaster%20recovery&tag=language:english, Customer must, in addition to subscribing to the SAP S/4HANA Cloud, disaster recovery, private edition Capacity Service, also subscribe to the SAP S/4HANA Cloud Private Edition, 4-hour recovery time objective Capacity Service.

6.3.3. Disaster Recovery and 4-hour recovery time objective services do not apply to: a) those SAP BW Capacity Services specifically marked as not eligible for Disaster Recovery or RTO in the applicable table in the Service Description Guide; or b) any non-productive environments.

6.4. **Additional Support Services**

6.4.1. Additional support services are provided beyond those in the Support Schedule for Cloud Services. The additional support services apply to the SAP BW Capacity Services excluding any software to which special support agreements apply exclusively ("**Enterprise Support Solutions**").

6.4.2. Continuous Improvement and Innovation

(a) SAP may make available ABAP source code for SAP software applications included in Enterprise Support Solutions (excluding third-party software) and additionally released and supported function modules.

(b) Software change management, including changed configuration settings or Enterprise Support Solutions software upgrades, is supported, with content, tools, and additional information.

6.4.3. Global Support Backbone

(a) SAP Notes on SAP's Customer Support Website document software malfunctions and contain information on how to remedy, avoid and bypass errors. SAP Notes may contain coding corrections. SAP Notes also document related issues, customer questions, and recommended solutions (e.g. customizing settings).

(b) SAP Note Assistant, a tool to install specific corrections and improvements to SAP components, is included.

6.4.4. Mission Critical Support. For Customer custom code built with the SAP development workbench, SAP provides mission-critical support root-cause analysis (Root Cause Analysis for Custom Code), according to the Global Incident Handling process and response levels for priority "very high" and priority "high" cases as set forth in the Support Schedule for Cloud Services. If the Customer custom code is documented according to SAP's then-current standards available at http://support.sap.com/supportstandards, SAP may provide guidance to assist Customer in issue resolution.

6.5. **Maintenance**

6.5.1. Support for the SAP BW Capacity Services is provided by SAP as described in the Support Schedule for Cloud Services referenced in the Order Form, and as further detailed in this Section, which describes maintenance activities ("**Maintenance**") that include but are not limited to, operating system security patch levels, database and application patches, infrastructure maintenance and other activities.

6.5.2. Maintenance will be scheduled by SAP in collaboration with Customer and will occur once a month during a 4-hour window on a weekday and for productive environments on a weekend ("**Scheduled Downtime**"). SAP will provide Customer at least 7 business days' advance notice before any Scheduled Downtime. If Customer objects to such Scheduled Downtime within 5 business days of SAP's notice, SAP and Customer will mutually agree on another reasonable date, time, and duration for Maintenance based on applicable requirements and available resources. If SAP and Customer do not agree on a Scheduled Downtime within 7 business days from the date of SAP's notice, SAP shall perform Maintenance based on the originally Scheduled Downtime.

6.5.3. If Customer fails to cooperate with the scheduling and/or performance of Maintenance, recommended by SAP, or in a timely manner, Customer shall be solely responsible for any resulting issues in SAP BW Capacity Services, including unexpected downtime.

6.5.4. Notwithstanding the foregoing, SAP reserves the right to perform Emergency Maintenance (as defined herein) activities at any time without Customer's prior consent. SAP will use reasonable efforts to provide Customer with at least 48 hours' advance notice for Emergency Maintenance. In case of SAP BW Capacity Service downtime during such Emergency Maintenance, such downtime will be considered "Excluded Downtime" as defined in the SLA for SAP BW Capacity Services. "**Emergency Maintenance**" is Maintenance that is reasonably necessary to prevent or mitigate circumstances that may otherwise pose a significant impact to the SAP BW Capacity Services, other Capacity Services or to the Cloud Service.

6.5.5. Customer must request and coordinate with SAP application of security patches with priorities "critical," "high," "medium," or "low" via a service request ticket. Such patches will be applied during Scheduled Downtime or other Agreed Downtime, as defined herein.

6.6. **Service Level Agreement**

The Service Level Agreement for Cloud Services referenced in the Order Form does not apply to the SAP BW Capacity Services. Instead, it is replaced by the following:

6.6.1. Service Level Agreement Definitions

6.6.1.1. "**Agreed Downtime**" means any downtime requested by SAP or Customer and mutually agreed by the parties.

6.6.1.2. "**Business Day**" means any day from Monday to Friday with the exception of the public holidays observed at Customer's address identified in the Order Form.

6.6.1.3. "**Computing Environment**" means the data center facilities, servers, networking equipment, operating systems, and data storage mechanisms selected and used by SAP to provide the SAP BW Capacity Service(s) for the Customer and includes the productive Computing Environment ("**PRD**"), and any other Computing Environment used for non-productive purposes ("**NON-PRD**"), as agreed in the Order Form.

6.6.1.4. "**Credit**" means 2% of the Capacity Unit Value per Month consumed for the affected SAP BW Capacity Service(s) for each 1% below the SA SLA, not to exceed 100% of the Capacity Unit Value consumed by the Customer for the relevant Month for the affected SAP BW Capacity Service(s), but subject to section 5 of this Service Level Agreement.

6.6.1.5. "**Downtime**" means the Total Minutes in the Month during which the SAP BW Capacity Service does not respond to a request from SAP's Point of Demarcation for the data center providing the Capacity Service, excluding Excluded Downtime.

6.6.1.6. "**Emergency Downtime**" means downtime during emergency patch deployment and emergency operating system upgrades as described in Section 6.4.

6.6.1.7. "**Excluded Downtime**" means the Total Minutes in the Month attributable to: Scheduled Downtime; or Agreed Downtime; or Emergency Downtime; or downtime caused by factors outside of SAP's reasonable control such as unpredictable and unforeseeable events that could not have been avoided even if reasonable care had been exercised (see examples in Section 6.5.2.); or downtime of a NON-PRD system caused by using the NON-PRD for failover/to repair to a PRD system.

6.6.1.8. "**Incident**" means unplanned interruptions or material reduction in service quality to the Computing Environment that is reported by Authorized Users.

6.6.1.9. "**Incident Reaction Time**" means the amount of time (e.g. in hours or minutes) between when the SAP Support Level 1 organization is notified of the Customer-reported Incident and the first action is taken by an SAP support person, familiar with the Customer's environment, to repair the Incident.

6.6.1.10. "**Local Time**" means the time zone in Customer's address identified in the Order Form.

6.6.1.11. "**Month**" means a calendar month.

6.6.1.12. "**Scheduled Downtime**" means downtime scheduled at a mutually agreed time as described in Section 6.4.

6.6.1.13. "**System**" means one or more interrelated and interdependent components such as databases, servers, networks, load balancers, web dispatchers, tenants, etc. which when taken as a whole are used to operate a tier. Each combination of components used within each tier is equivalent to one System. System Availability Percentage is measured at the tier level.

6.6.1.14. "**System Availability Percentage"** for each System is calculated and defined as follows:

$$=\left(\frac{\text{Total Minutes in the Month} - \text{Downtime}}{\text{Total Minutes in the Month}}\right) * 100$$

6.6.1.15. "**System Availability Service Level**" or "**SA SLA**" means the applicable System Availability Percentage specified below during each Month for the Computing Environment (and Server for Server Provisioning, if applicable) after System handover to the Customer:

(a) 99.7% System Availability Percentage for productive environments (PRD) unless a higher System Availability Percentage is identified in the Order Form;

(b) 95.0% System Availability Percentage for non-productive environments (NON-PRD) unless a higher System Availability Percentage is identified in the Order Form.

6.6.1.16. "**Total Minutes in the Month**" are measured 24 hours at 7 days a week during a Month.

6.6.2. System Availability

6.6.2.1. The SAP SLA shall not apply to Customer-provided software unless otherwise expressly set forth in the Order Form.

6.6.2.2. Excluded Downtime includes downtime caused by factors outside of SAP's reasonable control include, but is not limited to the following:

6.6.2.3. Customer's failure to meet Customer's responsibilities as set forth in the Agreement.

6.6.2.4. Downtime caused by Customer.

6.6.2.5. Interruptions as a result of requirements stipulated by a third-party manufacturer of the Customer-provided software.

6.6.2.6. Interruptions or shutdowns of the Computing Environment, or portions thereof resulting from the quality of the Customer-provided software and/or Customer's customizations or modifications of the Customer-provided software or Computing Environment (or Servers for Server Provisioning), unless this is the responsibility of SAP under this Agreement.

6.6.2.7. Restore times of user data (recovery of database data from a media backup) where SAP was not the root cause for the required restoration.

6.6.3. Backup And Computing Environment Incident Reaction Time

Description	**Computing Environment**	**Service Levels**
Backup Frequency and retention period for Databases	PRD	Daily full backup and log file backup per SAP product standard. 30 days retention time. Backup of the PRD will be replicated to an alternate data center or location.
	NON-PRD	Weekly full backup and log file backup per SAP product standard. 14 days retention time. Backup of the NON-PRD will be replicated to an alternate data center or location.
Long Term Backup*	PRD and/or NON-PRD	Monthly full back up – 1 year retention time Quarterly full back up – 1 year retention time Yearly full back up – up to 5 years retention time

Description	Computing Environment	Service Levels
Backup Frequency and retention period for File systems	PRD	Monthly full backup and daily incremental. Two Months retention time. Backup of the PRD will be replicated to an alternate data center or location.
	NON-PRD	Monthly full backup and daily incremental. Two Months retention time. Backup of the NON-PRD will be replicated to an alternate data center or location.
Incident Reaction Time for Incident Management	Incident Priority Very High	20 minutes (7x24) and (i) resolution or (ii) workaround or (iii) action plan within 4hrs for PRD
	Incident Priority High	2 hours (7x24) for PRD 4 hours [Local Time on Business Days] for NON-PRD
	Incident Priority Medium	4 hours [Local Time on Business Days] for PRD and NON-PRD
	Incident Priority Low	1 Business Day for PRD and NON-PRD

*Applies if this optional service is purchased in an Order Form. The retention periods for Long Term Backup will end at the earlier of the retention time set forth herein or the end of Customer's Cloud Service subscription term.

6.6.3.1. **Incident Priorities**. The following priority levels apply to all Incidents (such priority to be assigned by Customer, and which may be re-assigned by SAP based on the criteria below and acting reasonably):

6.6.3.1.1. **Very High**: An Incident should be categorized with the priority "Very High" if the incident reported has very serious consequences for normal business processes or IT processes related to core business processes, and urgent work cannot be performed. This is generally caused by the following circumstances:

(a) A PRD system is completely down.

(b) The imminent go-live or upgrade is jeopardized.

(c) The core business processes of Customer are seriously affected.

(d) A workaround is not available.

(e) The Incident requires immediate processing because the malfunction may cause serious losses.

6.6.3.1.2. **High**: An Incident should be categorized with the priority "High" if normal business processes are seriously affected. Necessary tasks cannot be performed. This is caused by incorrect or inoperable functions in the Computing Environment that are required immediately. The Incident is to be processed as quickly as possible because a continuing malfunction can seriously disrupt the entire productive business flow.

6.6.3.1.3. **Medium:** An Incident should be categorized with the priority "Medium" if normal business processes are affected. The problem is caused by incorrect or inoperable functions in the Computing Environment. A message should be categorized with the priority "Medium" if normal business transactions are affected.

6.6.3.1.4. **Low:** An Incident should be categorized with the priority "Low" if the problem has little or no effect on normal business processes. The problem is caused by incorrect or inoperable functions in the Computing Environment that are not required daily or are rarely used.

6.6.3.2. This section does not apply to Server Provisioning.

6.6.3.3. This section shall only apply to Incidents associated with any Additional Services, as defined in this Supplement, and other services applicable to the Computing Environment as identified in documents pertaining to those services.

6.6.4. Service Level Reporting

6.6.4.1. SAP shall track and report to Customer the Service Levels set forth herein in a monthly summary report.

6.6.4.2. In the event that one or more of the Service Levels set forth herein are not met, Customer may notify the assigned SAP account manager and request to analyze the Service Level metric statistics based on the monthly summary report provided by SAP.

6.6.4.3. SAP will then promptly:

6.6.4.3.1. determine the root cause or possible root cause of the failure (if known) to meet the Service Level; and

6.6.4.3.2. unless failure is excused, develop a corrective action plan, and submit such plan to Customer for written approval (which will not be unreasonably withheld or delayed) and, following Customer's written approval implement the plan in a reasonable period of time (and in accordance with any agreed timescales).

6.6.4.4. If applicable, SAP will provide the specific Credit as described in Section 6.5.5.1. below.

6.6.4.5. SAP will be relieved of its obligation to pay any applicable Credits and will not be in breach of the Service Level where the root cause analysis (as reasonably performed by SAP) indicates the failure to meet the relevant Service Level was caused by Customer and shall therefore be treated as Excluded Downtime. In the event that Customer disagrees with the root cause analysis, the parties will discuss the root cause analysis.

6.6.5. Service Level Failures

6.6.5.1. Credits

6.6.5.1.1. If SAP fails to meet the applicable SA SLA, Customer is entitled to claim a Credit, which is calculated as the sum of the Credits for NON-PRD, PRD and Server Provisioning (as applicable), for SAP's failure to meet the respective SA SLA for the affected Capacity Services. Claims for a Credit must be made in good faith through a documented submission of a support case within 30 Business Days after receipt of the monthly SA SLA report.

6.6.5.1.2. When Customer's entitlement of the Credit is confirmed by SAP in writing (email permitted), SAP will apply such Credit to a future invoice relating to the Cloud Service or provide a refund if no future invoice is due under the Agreement.

6.6.5.1.3. Customer acknowledges that the Credits are the sole and exclusive remedy for SAP's failure to meet the specified Service Level, except to the extent prohibited by applicable law.

6.6.5.1.4. Customers who have not subscribed to the Capacity Service directly from SAP must claim the Credit from their applicable SAP partner.

6.6.5.2. Termination. In the event SAP fails to meet the SA SLA for PRD Computing Environments for (i) 3 consecutive Months, or (ii) 5 or more Months during any 12-month period, Customer may terminate its subscription to the affected Cloud Service by providing SAP with written notice within 30 days of Customer's receipt of the respective summary monthly report. Termination shall become effective 1 Month after SAP's receipt of such notice (or any later date set out by Customer in its notice). For the avoidance of doubt, this termination right shall supersede any and all other termination provision in the GTC for failure to meet an SA SLA, and such termination right from the GTC shall not apply.

6.6.6. Service Requests

6.6.6.1. Customers may request specific tasks related to the Computing Environment via the SAP Service Request Platform ("Service Request"). To the extent Service Requests are distinct from an Incident, SAP will address Service Requests during the following hours of operations:

PRD	24x7 subject to Excluded Downtime
NON-PRD	24x5 (Business Days) subject to Excluded Downtime

6.6.6.2. The services are provided in English only.

6.7. **Add-ons and Modifications**

6.7.1. Customer has the right to use Customer ABAP Add-ons, SAP-provided Add-ons, and Additional Add-ons, and the right to develop Customer ABAP Add-ons for the SAP BW Capacity Services in furtherance of its permitted use of such Capacity Services. Where Customer is also subscribed to SAP extended services for SAP BW Capacity Services, Customer is only permitted to use SAP-provided Add-ons and Additional Add-ons.

6.7.2. For the following SAP BW Capacity Services: (a) SAP S/4HANA Cloud Private Edition; (b) SAP S/4HANA Cloud, private edition, base; (c) SAP S/4HANA Cloud, private edition and experience management; and (d) SAP S/4HANA Cloud, private edition, premium only, Customer has the right to develop and use Modifications to these Capacity Services in furtherance of its permitted use of such Capacity Services. Customer is responsible for all installation, management and support for any Modifications, Customer ABAP Add-ons, and Additional Add-ons. Customer is responsible for testing and resolving source code issues, compatibility issues, security vulnerabilities or other conflicts that may arise from Modifications, Customer ABAP Add-ons, and/or Additional Add-ons in a timely manner. The SLA and Support Schedule shall not apply to any Customer ABAP Add-ons. Modifications, Customer ABAP Add-ons, and Additional Add-ons must not enable the circumventing of any restrictions set forth in the Agreement, nor impair or degrade the performance, system availability, operability, or security of the SAP S/BW Capacity Services. Customer shall notify SAP, without undue delay, of any issues or vulnerabilities in the Modifications, Customer ABAP Add-ons, or Additional Add-ons that may impair or degrade the SAP BW Capacity Services. SAP shall not be responsible for any such impairments or degradations of the SAP BW Capacity Services caused by Customer ABAP Add-ons. SAP reserves the right to restrict or require the removal of any Add-ons and Modifications if SAP determines that: (i) the Add-on or Modification may pose a risk to the SAP BW Capacity Services; (ii) the Add-ons does not meet SAP's published quality standards; (iii) are in breach of the Agreement by Customer; or (iv) enable the extraction of Data Products to non-SAP applications through any means not authorized via SAP.

6.7.3. Customer ABAP Add-ons and all rights associated thereto, shall be the exclusive property of Customer, subject to SAP's rights in and to the SAP BW Capacity Services and Cloud Materials as indicated in this Agreement; provided Customer shall not commercialize any such Customer ABAP Add-ons developed under this Agreement. Customer grants SAP (including SAP SE, its Affiliates, and subcontractors) a non-exclusive right to process, utilize, and display Customer ABAP Add-ons for the purpose of providing and supporting SAP BW Capacity Services to the Customer, as set forth in the Agreement. In exchange for Customer's right to develop, subject to the Agreement, Customer ABAP Add-ons, Customer covenants, on behalf of itself, successors, and assigns, not to assert against SAP SE, their Affiliates or licensors, any rights in Customer ABAP Add-ons, or any claims of any rights against any SAP product, service, or future SAP development that utilizes any Cloud Materials that are also used in Customer ABAP Add-ons.

6.7.4. For the purposes of this Cloud Service, Cloud Materials shall include: (i) all Add-ons developed by SAP, independently or jointly with Customer, and (ii) all Modifications. All intellectual property rights in and related to such Add-ons and Modifications, including any derivatives thereof are owned by SAP, SAP SE, their Affiliates or licensors.

6.7.5. Except as set forth above in connection with Add-ons and Modifications, Customer may not use any other Customer-provided software in the SAP BW Capacity Services, including on the operating system. If SAP, on an exceptional basis, permits Customer to use any such Customer-provided software, each of the requirements and restrictions applicable to Add-ons and Modifications set forth above shall apply, in addition to the following terms: (a) Customer is responsible for obtaining all necessary rights from third parties required for SAP to run and host any Customer-provided software in conjunction with the SAP BW Capacity Services; (b) Customer will, at SAP's request, provide written verification of such rights; (c) Customer grants to SAP the non-exclusive right to use the Customer-provided software for the sole purpose of and only to the extent necessary for SAP to provide the SAP BW Capacity Services; and (d) Customer acknowledges that additional fees may apply in connection with management and support of such Customer-provided software in the Capacity Services.

6.8. **Customer Data Return.** Prior to termination or expiration of the Subscription Term, at Customer's request, SAP shall provide to Customer, within a reasonable time period and in a reasonable backup media format utilized by SAP, a final export of the Customer Data in the SAP BW Capacity Service. Customer must verify the usability of this export within two weeks of receipt. In the event Customer does not provide verification within the two-week period, the exported Customer Data shall be deemed usable.

6.9. **Customer Responsibilities**

6.9.1. SAP's provision, operation and support of the SAP BW Capacity Service is subject to Customer`s reasonable cooperation and providing necessary information (including any on-boarding documentation), authorizations and qualified resources for such activities no later than 5 business days from the Order Form Effective Date. Customer authorizes SAP to set up and use an administrative user in the SAP BW Capacity Service systems as needed to provision and confirm Customer's subscribed usage and technical compliance of the SAP BW Capacity Service.

6.9.2. Customer is responsible for the definition, documentation, and execution of Customer's business processes in the SAP BW Capacity Service, including, but not limited to configuration of systems' management and application and data security policies and batch processing requirements. Customer is responsible for providing SAP necessary and sufficient documentation of its applicable processes and Customer ABAP Add-ons for SAP to perform its responsibilities under the Agreement.

6.10. **Upgrades and Releases**

6.10.1. Customer is responsible for arranging SAP's technical installation of upgrades and new releases of the SAP BW Capacity Services. Customer must only use a version or release of the SAP BW Capacity Service for which software maintenance and support are current, as provided by SAP. For purposes of this Section, "current" means it is covered by mainstream maintenance, or Extended Maintenance, if applicable, as identified at: https://support.sap.com/en/release-upgrade-maintenance/maintenance-information/maintenance-strategy.html.

6.10.2. For all additional and Customer ABAP Add-ons, simplification and incompatibility checks must be executed by Customer. Customer is responsible for evaluating the results of such checks to ensure that implemented business processes, backend and frontend applications and integrations are running after changes to the SAP BW Capacity Service.

6.10.3. SAP's obligations under the Agreement and Documentation are dependent on Customer maintaining the SAP BW Capacity Service as current. SAP is not responsible for the reliability, performance, availability, functionality, security, or any other related issues experienced with the SAP BW Capacity Service that may result from running a release that is not current and is not liable to Customer for any loss or damage that might arise from a SAP BW Capacity Service's inoperability or unavailability because it is not current.

6.10.4. If SAP is not able to perform upgrades due to the lack of Customer's cooperation, (i) SAP's ability to provide support may be limited and SAP assumes no responsibilities for such limitations and (ii) the System Availability Service Levels in the SLA shall not apply.

6.10.5. Customer is responsible for the connection to the SAP BW Capacity Services, including the internet connection to the Point of Demarcation. SAP's responsibility shall not extend beyond the Point of Demarcation. "**Point of Demarcation**" means the outbound firewall (or, in case of a VPN for access, the point of connection of the SAP network to the VPN) of SAP's computing environment used to provide the SAP BW Capacity Services.

6.11. If Customer fails to fulfil any Customer obligations in relation to the BW Capacity Services, Customer is solely responsible for the ramifications of such failure including delays, subsequent costs, and any performance, availability, functionality, support, and/or security issues experienced with the SAP BW Capacity Services.

6.12. **Additional Services.**

6.12.1. For these Capacity Services, Customer may request Professional Services from SAP, which are not included as part of the Cloud Service, as set forth in the SAP S4HANA Cloud, private edition, SAP ERP, PCE and SAP Business Data Cloud Roles and Responsibilities document, available at: https://www.sap.com/about/agreements/policies/hec-services.html?sort=latest_desc ("**Additional Services**").

6.12.2. The SAP S4HANA Cloud, private edition, SAP ERP, PCE and SAP Business Data Cloud Roles and Responsibilities document forms part of the Documentation for these Capacity Services and may be unilaterally updated by SAP from time to time.

6.12.3. Additional Services are ordered and agreed to via a ticket, at Customer's or SAP's request on behalf of Customer on the SAP service request platform or an equivalent platform.

6.12.4. Additional Services are charged in arrears.

7. ADDITIONAL TERMS: SAP HANA CLOUD CAPACITY SERVICES

7.1. "**Availability Zone**" or "**Zone**" means a data center in a unique physical location that has its own power, cooling, and networking.

7.2. "**Replica**" means a copy of the SAP HANA Cloud Capacity Service build (in addition to the primary instance) by synchronous or asynchronous replication. In case of a failure of the primary instance, the Replica can be used to support business continuity.

7.3. **Disaster Recovery**

7.3.1. For SAP HANA Cloud Capacity Services, SAP provides enhanced disaster recovery ("DR"), as described in the then-current SAP BTP Disaster Recovery Overview, available at: https://www.sap.com/about/agreements/policies/cloud-service-specifications.html?sort=latest_desc&search=disaster%20recovery.

7.3.2. In order for DR obligations to apply, Replica must be operational (and the replication synchronous) the entire month.

7.4. **Service Level Agreement**

7.4.1. For SAP HANA Cloud Capacity Services, the Service Level Agreement for SAP Cloud Services (referred to in this Section as "SLA") is amended as set forth in this Section. Except as provided herein, the terms and conditions of the SLA shall remain unchanged. Defined terms used in this Section shall have the same meaning as the defined terms in the SLA.

7.4.2. Any Credit to which Customer is entitled shall be based on the Capacity Unit Value for a relevant SAP HANA Cloud Capacity Service that did not meet the System Availability SLA.

7.4.3. The definition of "Credit" in Section 1.1 of the SLA is modified to read as follows:

"**Credit**" means the percentage indicated in the column "Credit" of the table below, which is calculated based on the Capacity Unit Value of a relevant SAP HANA Cloud Capacity Service, not to exceed 100% of the Capacity Unit Value for such Capacity Service.

7.4.4. The definition of "System Availability SLA" in Section 1.9 of the SLA is modified to read as follows:

"**System Availability SLA**" means the percentage indicated in the table below during each Month for a relevant SAP HANA Cloud Capacity Service.

7.4.5. In order for the System Availability SLA to be 99.95% or 99.99% in a given Month (as described in the table below), the Replica must be operational (and the replication synchronous) the entire Month. If the Replica is not in continuous operation (and replication not synchronous) for the entire Month, with the exception of the Replica being disabled at the express written request of SAP, the System Availability SLA shall be 99.9%.

7.4.6. For purposes of calculating Downtime under the SLA, the primary system and Replica must both be unavailable.

7.4.7. SAP HANA Cloud Capacity Services System Availability SLA and Credits are as follows:

Number of Synchronous Replicas and Zones	**No Replica/ One Zone**		**One Replica/ One Zone**		**One Replica/ Multi Zone**	
	Replicas	Zones	Replicas	Zones	Replicas	Zones
	0	1	1	1	1	>1
System Availability SLA	99.9%		99.95%		99.99%	
System Availability Percentage	**Credit**					
< 99.99%	n/a		n/a		10%	
< 99.95%	n/a		10%		10%	

< 99.9%	10%	25%	25%
< 99%	25%	50%	50%
< 95%	50%	100%	100%
<90%	100%	n/a	n/a

SAP Cloud ALM, tenant extension Cloud Service

Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies solely to the SAP Cloud ALM, tenant extension Cloud Service.

1. USAGE METRIC

The Usage Metric for the Cloud Service is TENANT in blocks of 1. “TENANT” is a customer-specific instance of the Cloud Service.

2. ADDITIONAL TERMS

- The usage right for the Cloud Service requires SAP Cloud ALM, which means SAP Cloud Service subscriptions containing Enterprise Support, cloud editions, in SAP Enterprise Support and in Product Support for Large Enterprises.
- The Cloud Service may only be used for application lifecycle management of the customer's on-premise SAP solutions insofar as these solutions are covered by customer's SAP Support agreement.
- The Cloud Service may only be used for the customer's own internal ALM processes.
- The Cloud Service includes a baseline of 24 GB SAP HANA Memory.
- The Cloud Service includes a baseline of 24 GB monthly outbound API data transfer.
- Test management in the Cloud Service is built to test and validate business processes. The Cloud Service may not be used for automation of productive business processes.

SAP HANA Cloud
Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies solely to SAP HANA Cloud Cloud Service.

1. DEFINITIONS

1.1. "**Availability Zone**" or "**Zone**" means a data center in a unique physical location that has its own power, cooling, and networking.

1.2. "**Capacity Services**" means the services of SAP HANA Cloud Cloud Service identified in the Attachment A, as may be updated by SAP from time-to-time with additional Capacity Services.

1.3. "**Capacity Unit**" is a ratio of services consumed via the Capacity Service and is calculated as set forth in this Supplement.

1.4. "**Capacity Units of Measure**" is a block used to measure consumption of a Capacity Service .

1.5. "**Capacity Unit Value**" means the numerical value assigned to a specific Capacity Service that, when multiplied by the number of Capacity Units of Measure used, results in the consumed Capacity Units.

1.6. "**Data Product(s)**" means enriched data or enriched Customer Data, where enrichment is any type of reorganization, semantics, summarization, reporting or metadata. Data Products include, but are not limited to, data described by metadata and/ or semantics that is consumable outside the SAP Business Data Cloud Cloud Service.

1.7. "**Replica**" means a copy of the SAP HANA Cloud instance build (in addition to the primary instance) by synchronous or asynchronous replication. In case of a failure of the primary instance, the Replica can be used to support business continuity. The Replica does not include the Data Lake Services (i.e., Compute and Storage).

2. USAGE METRIC

2.1. The Usage Metric for the Cloud Service is Capacity Units per month.

2.2. Each Capacity Service specified in the Attachment A has a corresponding Capacity Unit of Measure and Capacity Unit Value. To calculate the number of Capacity Units consumed through use of a Capacity Service, the total amount of Capacity Units of Measure used during the month is multiplied by the Capacity Unit Value to arrive at the number of Capacity Units consumed by that Capacity Service. Customer may consume Capacity Units up to the total amount stated in the Order Form for each month. Unused Capacity Units may not be carried over into any subsequent month.

> Calculation example:In the SAP HANA Cloud Service,for the HANA Memory Capacity Service if 20 GB (20 blocks) were consumed for 100 hours in one month, the resulting consumption would be 46 Capacity Units (i.e.: 20 blocks x 0.023 Capacity Unit Value x 100 hours = 46 Capacity Units.

2.3. As part of the Cloud Service, Customer is entitled to a network data transfer of Data Products, from SAP Business Data Cloud, in the amount of 1 GB per 1 GB of compute memory, per month.

3. ADDITIONAL TERMS

3.1. In the event that SAP adds new services to the Cloud Service, during Customer's Subscription Term: (a) SAP will release a new Supplement reflecting such new services ("Updated Supplement"); (b) Customer's use of such new services will be subject to any applicable new terms in the Updated Supplement; and (c) any Customer use of such new services will be deemed Customer's acceptance of the Updated Supplement, solely as applicable to such new services. For purposes of clarification, all services other than new services will remain governed by the applicable Supplement(s) in effect under the Agreement prior to the Updated Supplement.

3.2. **Disaster Recovery**

3.2.1. For this Cloud Service, SAP provides enhanced disaster recovery ("**DR**"), as described in the then-current SAP BTP Disaster Recovery Overview, available at: https://www.sap.com/about/agreements/policies/cloud-service-specifications.html?sort=latest_desc&search=disaster%20recovery.

3.2.2. In order for DR obligations to apply, Replica must be operational (and the replication synchronous) the entire month.

3.3. **Service Level Agreement**

3.3.1. For this Cloud Servce, the Service Level Agreement for SAP Cloud Services is amended as set forth in this Section 3.3. Except as provided herein, the terms and conditions of the Service Level Agreement for SAP Cloud Services shall remain unchanged. Defined terms used in this Section shall have the same meaning as the defined terms in the SLA.

3.3.2. Any Credit to which Customer is entitled shall only apply to the Monthly Subscription Fees for SAP HANA Cloud.

3.3.3. The definition of "Credit" in Section 1.1 of the SLA is modified to read as follows:

'"Credit" means the percentage of the Monthly Subscription Fees indicated in the table below, not to exceed 100% of Monthly Subscription Fees.'

3.3.4. The definition of "System Availability SLA" in Section 1.9 of the SLA is modified to read as follows:

'"System Availabillity SLA" means the System Availability Percentage indicated in the table below during each Month for the production version of the Cloud Service.'

3.3.5. In order for the System Availability SLA to be 99.95% or 99.99% in a given Month (as described in the table below), the Replica must be operational (and the replication synchronous) the entire Month. If the Replica is not in continuous operation (and replication not synchronous) for the entire Month, with the exception of the Replica being disabled at the express written request of SAP, the System Availability SLA shall be 99.9%.

3.3.6. For purposes of calculating Downtime, under the SLA, the primary system and Replica must both be unavailable.

3.3.7. SAP HANA Cloud System Availability SLA and Credit are as follows:

Number of Synchronous Replicas and Zones	**No Replica/ One Zone**		**One Replica/ One Zone**		**One Replica/ Multi Zone**	
	Replicas	Zones	Replicas	Zones	Replicas	Zones
	0	1	1	1	1	>1
System Availability SLA	99.9%		99.95%		99.99%	
System Availability Percentage	**Credit**					
< 99.99%	n/a		n/a		10%	
< 99.95%	n/a		10%		10%	
< 99.9%	10%		25%		25%	
< 99%	25%		50%		50%	
< 95%	50%		100%		100%	
<90%	100%		n/a		n/a	

3.4. Artificial intelligence ("AI") features and technologies, that are made available under the Agreement, are subject to the SAP AI Terms available at the following (or a successor) link: https://www.sap.com/about/trust-center/agreements.html.

ATTACHMENT A
to
SAP HANA Cloud Supplemental Terms and Conditions

Capacity Service	Capacity Unit of Measure	Capacity Unit Value (number of CUs)
HANA CPU	1 vCPU / hour	0.160
HANA Memory	1 GB / hour	0.023
HANA Storage	16 GB / hour	0.013
ECN HANA CPU	1vCPU / hour	0.480
ECN HANA Memory	1 GB / hour	0.069
ECN HANA Storage	16 GB / hour	0.013
Data Lake CPU	1 vCPU / hour	0.125
Data Lake Memory	8 GB / hour	0.125
Data Lake API Call	2500 API Call	0.059
Data Lake SQL File Scan	32 GB	0.521
Data Lake Temp Storage	32 GB / hour	0.041
Data Lake Standard Storage	1 TB / hour	0.272
Data Lake File Storage	1 TB / hour	0.093
Data Lake EFS Storage	1 TB / hour	1.794
Backup Storage	64 GB / hour	0.011
Network Data Transfer	1 GB	0.438
Cloud Connector CPU	1 vCPU	0.160
Cloud Connector Memory	1 GB / hour	0.023

SAP Sales Cloud and SAP Service Cloud Version 2
Supplemental Terms and Conditions

This supplement is part of an agreement for SAP Cloud Services between SAP and Customer and applies only to SAP Sales Cloud and SAP Service Cloud Version 2 Cloud Services.

1. CLOUD SERVICE

1.1. Customer may subscribe to non-productive tenants that are described in the Documentation (each a "Test Tenant"), which may only be used for non-productive development and testing. No more than 50 Users may access each Test Tenant and the data storage limit shall not exceed 500 GB for each Test Tenant.

1.2. SAP will provide storage for SAP Sales Cloud and Service Cloud Version 2 up to 10 gigabytes and for SAP Sales Cloud and Service Cloud Version 2, limited use up to 1 gigabyte of disk storage space per User (Data Storage + File Storage), not to exceed (a) 10 TB total storage for all Users, or (b) 250 million data records for all Users, whichever occurs first. In the event Customer exceeds these limits, Customer will reasonably cooperate with SAP to optimize Customer's use of the Cloud Service, including the storage of Customer Data in the Cloud Service.

1.3. The total number of API and event calls per 24-hour period is limited to 150,000 plus an additional 1,500 per User and an additional 150 per Limited User. This includes all API calls for the Cloud Service except the standard Cloud Service UI's. Data import and exports can only be done one at a time, and not in batches. Each import or export cannot exceed 50,000 records per block.

1.4. For SAP Sales Cloud and Service Cloud Version 2, limited use, there is a limitation of 1,200 Transactions per Limited User per calendar year. Transaction is any message, job, action, response, and/or tasks processed via the Cloud Service. For this Cloud Service, transactions are cases, phone calls, emails, tasks, chats, notes, leads, opportunities, appointments, visits, attachments, quotes, orders.

1.5. A subscription to the SAP Sales Cloud and Service Version 2 Cloud Service is a pre-requisite for the SAP Sales Cloud and Service Cloud Version 2, limited use Cloud Service. Customers may only license two (2) Limited Users for every User license.

2. USAGE METRICS

2.1. The Usage Metric for the SAP Sales Cloud and SAP Service Cloud Version 2 Cloud Service is User. For this Cloud Service, User is any individual authorized to access the Cloud Service except for Limited Users (as defined below).

2.2. The Usage Metric for the SAP Sales Cloud and SAP Service Cloud Version 2, limited use Cloud Service is User. For this Cloud Service, only Limited Users are counted as Users. Limited Users are occasional users of the Cloud Service, such as operational or seasonal users.

3. ADDITIONAL TERMS

3.1 Inter Data Center Movement

3.1.1 Inter data center movement of customer instances (tenants) is not supported.

3.2 AI Technologies

3.2.1 Artificial intelligence features and technologies that are made available with the Cloud Service are subject to the SAP AI Terms available at the following (or a successor) link: https://www.sap.com/about/trust-center/agreements.html.

3.3 Embedded Launch Activities

3.3.1 Embedded launch activities are included for a first-time subscription to Cloud Service(s) which are specified in the Embedded Launch Activities Specifications documentation, accessible at https://www.sap.com/about/agreements/policies.html

4. OPTIONAL SERVICES

The following services may be added to a Cloud Service subscription for additional fees based on the following Usage Metrics and requirements.

4.1 **SAP Service Cloud Version 2, utilities add-on**. The Usage Metric for SAP Service Cloud Version 2, utilities add-on is User.

4.2 **SAP Service Cloud Version 2, sales capabilities add-on**. The Usage Metric for SAP Service Cloud Version 2, sales capabilities add-on is User. This add-on requires a subscription to SAP Service Cloud Version 2. The number of users in the add-on must be equal to or less than the number of users in the SAP Service Cloud Version 2 subscription.

4.3 **SAP Sales Cloud Version 2, service capabilities add-on**. The Usage Metric for SAP Sales Cloud Version 2, service capabilities add-on is User. This add-on requires a subscription to SAP Sales Cloud Version 2. The number of users in the add-on must be equal to or less than the number of users in the SAP Sales Cloud Version 2 subscription.

4.4 **SAP Sales Cloud Version 2, field sales add-on.** The Usage Metric for SAP Sales Cloud Version 2, field sales add-on is User. This add-on requires a subscription to SAP Sales Cloud Version 2. SAP Sales Cloud Version 2, field sales add-on is not available in all data centers in which the solution is hosted. Geo-codes in the field sales add-on are not for external use and may not be extracted from the Cloud Service via APIs or any other means.

SAP Secure Login Service for SAP GUI
Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies solely to the SAP Secure Login Service for SAP GUI Cloud Service.

1. USAGE METRIC

1.1. The Usage Metric for the Cloud Service is User in blocks of 500. "**User**" is any individual authorized to access the Cloud Service.

2. ADDITIONAL TERMS

2.1. The Cloud Service includes 1 productive tenant.

2.2. The Cloud Service also includes provisioning access to SAP Business Technology Platform ("SAP BTP"), as described in the applicable Documentation. Customer's use of SAP BTP is subject to SAP Business Technology Platform Supplemental Terms and Conditions, located at: http://www.sap.com/agreements-cloud-supplement.

WalkMe Cloud Services

Supplemental Terms and Conditions

This Supplement is part of an Agreement between SAP and Customer and applies solely to the WalkMe Cloud Services listed below, provided the Customer has a valid subscription (each individually a "WalkMe Cloud Service"). Each WalkMe Cloud Service is a Cloud Service under the GTC. WalkMe Cloud Services listed under numbers 1 to 14 may also be collectively referred to as WalkMe Premium Cloud Services. WalkMe Cloud Services listed under numbers 12-14 may also be collectively referred to as WalkMe Premium for non-SAP solutions.

1.	WalkMe Premium for finance
2.	WalkMe Premium for supply chain
3.	WalkMe Premium for SAP BTP solutions
4.	WalkMe Premium for SAP Business Data Cloud
5.	WalkMe Premium for SAP CX solutions
6.	WalkMe Premium for SAP S/4HANA Cloud Public Edition
7.	WalkMe Premium for SAP S/4HANA Cloud Private Edition
8.	WalkMe Premium for SAP Signavio solutions
9.	WalkMe Premium for SAP LeanIX solutions
10.	WalkMe Premium for SAP SuccessFactors HCM
11.	WalkMe Premium for SAP Ariba solutions
12.	WalkMe Premium for non-SAP solutions, one application
13.	WalkMe Premium for non-SAP solutions, two applications
14.	WalkMe Premium for non-SAP solutions, three applications
15.	WalkMe Digital Adoption Platform
16.	WalkMe Discovery
17.	WalkMe Learning Arc
18.	WalkMe Premium for customers

1. USAGE METRIC

1.1. The Usage Metric for the WalkMe Cloud Services is Active User. "**Active User**" is any individual who accesses the Cloud Service. Such individual must also qualify as an Authorized User as defined in the GTC. For avoidance of doubt, any individual who views, consumes, is presented with, or otherwise accesses and engages with:

(a) SAP Materials provided as part of the WalkMe Cloud Service; and/or

(b) the Content (as defined below)

shall be deemed an Active User.

"**Content**" means content created by or for Customer and published using WalkMe Cloud Services.

1.2. Except for the WalkMe Cloud Services specified in the table below, Customer shall subscribe to an initial minimum block of 100 Active Users.

Cloud Service	**Initial minimum block (Active Users)**
WalkMe Digital Adoption Platform	500
WalkMe Premium for SAP Signavio solutions	20
WalkMe Premium for SAP LeanIX solutions	20
WalkMe Discovery	0
WalkMe Learning Arc	50
WalkMe Premium for customers	2500
WalkMe Premium for SAP S/4HANA Cloud Public Edition	500
WalkMe Premium for SAP S/4HANA Cloud Private Edition	500
WalkMe Premium for SAP SuccessFactors HCM	3000
WalkMe Premium for non-SAP solutions, one application	500
WalkMe Premium for non-SAP solutions, two applications	500
WalkMe Premium for non-SAP solutions, three applications	500

1.3. Customer shall implement unique user identification ("**UUID**"), as specified in the Documentation for (a) Active Users, (b) where applicable for Permitted Target Application and (c) for WalkMe Premium for customers where a unique log in is required. Failure to implement UUIDs will result in SAP performing a usage calculation based on per-session cookies to calculate the number of Active Users, potentially leading to higher fees and reduced data quality. Customer acknowledges the imprecision and potential adverse effects of cookie-based tracking.

1.4. Customer shall assign and authenticate Active Users for WalkMe Learning Arc through its identity provider system ("**IdP**"). Customer acknowledges and agrees that for the use of WalkMe Learning Arc Customer shall maintain and utilize an IdP.

1.5. For the purpose of evaluating Customer's excess use of a WalkMe Cloud Service, SAP will count all Active Users in the previous 6 (six) full calendar months with the data updated on the first of each month. Any use that exceeds the contractually agreed Usage Metric volume will be considered. For the purpose of evaluating Customer's excess use of a WalkMe Premium for non-SAP solutions, SAP will count all Active Users for each application in the previous 6 (six) full calendar months with the data updated on the first of each month. Any use that exceeds the contractually agreed Usage Metric volume will be considered.

2. ADDITIONAL TERMS

2.1. **WalkMe Premium Cloud Services**.

2.1.1 Customer acknowledges and agrees that any WalkMe Premium Cloud Service is dependent on a continuous subscription to the corresponding SAP Cloud Service(s) as specified in the Documentation.

2.1.2 Customer is authorized to use such WalkMe Premium Cloud Service, SAP Materials, Documentation, and Content only in connection with the corresponding SAP Cloud Service(s)

2.2. **WalkMe Digital Adoption Platform and WalkMe Discovery Cloud Service.**

2.2.1 If Customer wishes to access and use WalkMe Digital Adoption Platform Cloud Service and/or WalkMe Discovery Cloud Service in connection with any SAP Cloud Service, then Customer must maintain valid subscriptions to such SAP Cloud Service(s). These SAP Cloud Service subscriptions are not included and must be licensed separately.

2.2.2 Customer may access and use WalkMe Digital Adoption Platform Cloud Service and WalkMe Discovery Cloud Service in connection with a) SAP Cloud Services and b) Permitted Target Applications.

2.2.3 "**Permitted Target Applications for WalkMe Digital Adoption Platform and WalkMe Discovery Cloud Service"** include any supported software applications that are Customer-developed or third-party applications to which Customer has valid licenses or subscriptions. It is Customer's sole responsibility to verify that access and use of these Cloud Services on Permitted Target Applications for WalkMe Digital Adoption Platform and WalkMe Discovery Cloud Service is technically feasible and legally permissible.

2.2.4 **Third-party Terms for Permitted Target Applications**. For Permitted Target Applications that are subject to third-party license or subscription terms, Customer acknowledges and agrees to comply with all terms and conditions, including but not limited to, any applicable license agreements, terms of service, or other contractual obligations. Customer is solely responsible for compliance with such third-party terms. SAP is not responsible, without limitation, for any infringement of any third-party rights or terms resulting from Customer's use of the WalkMe Digital Adoption Platform Cloud Service, WalkMe Discovery Cloud Service and/ or WalkMe Premium for non-SAP solutions with Permitted Target Applications.

2.3. **WalkMe Premium for non-SAP solutions.**

2.3.1 Customer may access and use WalkMe Premium for non-SAP solutions, in connection with Permitted Target Applications for WalkMe Premium for non-SAP solutions, as limited per the Order Form.

2.3.2 "**Permitted Target Applications for WalkMe Premium for non-SAP solutions"** include any supported software applications that are Customer-developed or third-party applications to which Customer has valid licenses or subscriptions. It is Customer's sole responsibility to verify that access and use of these Cloud Services on Permitted Target Applications for WalkMe Premium for non-SAP solutions is technically feasible and legally permissible.

2.3.3 If Customer wishes to access and use WalkMe Premium for non-SAP solutions in connection with any non-SAP solution, Customer acknowledges and agrees that it must maintain continuous and valid subscriptions to the relevant non-SAP solution.

2.3.4 Customer is authorized to use WalkMe Premium for non-SAP solutions, SAP Materials, Documentation, and Content only in connection with the corresponding non-SAP solution(s) that WalkMe Premium for non-SAP solutions was deployed on. The non-SAP solution(s) cannot be changed for the duration of the Subscription Term.

2.4. **WalkMe Premium for customers**

2.4.1. Notwithstanding the license grant and definition of "Business Partner" in the Cloud GTC, WalkMe Premium for customers must not be used for Customer's or its Affiliates' internal business operations and any such use is expressly excluded. Use of WalkMe Premium for customers is restricted exclusively to customer-facing business operations as further specified in this Section 2.3.

2.4.2. Customer may access and use WalkMe Premium for customers in connection with Permitted Target Applications. "**Permitted Target Applications for WalkMe Premium for customers"** are Customer-developed applications such as any external-facing website that is open to the public, any password-protected website or any supported software application distributed or made available (including on a SaaS basis) to Customer's customers.

2.4.3. Active Users are limited to any end users of Permitted Target Applications for WalkMe Premium for customers.

2.5. **AI Technology**. AI Technology provided with the WalkMe Cloud Services is subject to the SAP AI Terms which are hereby incorporated into the Agreement and accessible at https://www.sap.com/about/trust-center/agreements/cloud/cloud-services.html?sort=latest_desc&search=AI%20Terms&tag=agreements:general-terms-and-conditions/ai

2.6. **Personal Data Processing**. Customer will not use the analytics capabilities of any WalkMe Cloud Service for any prohibited employee monitoring, other electronic surveillance technique or any violation of anti-wiretap or similar laws and regulations. Customer will reimburse SAP for any damages suffered resulting from Customer's noncompliance with the usage restrictions mentioned in the preceding sentence.

2.7. **Use of Content.** Customer may only use the Content in connection with its subscription to the WalkMe Cloud Services. For the avoidance of doubt, the Content may not be distributed or otherwise shared with third parties other than Active Users for use in connection with the Customer and its Affiliates' internal business operations. SAP, SAP SE, their Affiliates or licensors own and shall retain all rights, including ownership and IP Rights to the default Content designs and "look and feel" thereof.

SUPPORT SCHEDULE FOR CLOUD SERVICES

This Support Schedule is part of the Agreement for Cloud Services between SAP and Customer.

1. DEFINITIONS

1.1. "**Go-Live**" marks the point in time from when, after set-up of the Cloud Services for Customer, the Cloud Services can be used by Customer for processing real data in live operation mode and for running Customer's internal business operations in accordance with its agreement for such Cloud Services.

1.2. "**Local Business Hours**" means 8 a.m. (08:00) to 6 p.m. (18:00) Monday to Friday excluding local holidays, in accordance with local time zone applicable to the Customer's address.

1.3. "**SAP's Customer Support Website**" means SAP's customer facing support website (see: https://support.sap.com unless a different support website is listed in the Agreement or https://support.sap.com/contactus). In selected Cloud Services, support can also be accessed via the application itself.

2. SCOPE OF SUPPORT AND SUCCESS OFFERINGS

2.1. General

2.1.1. SAP offers the following:

a) SAP Enterprise Support, cloud editions: Foundational engagement support as part of the Cloud Service with focus on customer interaction and case resolution.

b) SAP Preferred Success: An add-on to SAP Enterprise Support, cloud editions that includes strategic guidance, solution-specific best practices and success programs to help drive consumption and value realization.-

c) SAP Enterprise Support, cloud editions is included in the subscription fees for the Cloud Services stated in the Order Form unless alternative support terms are agreed. SAP Preferred Success may be purchased for eligible Cloud Services for an additional fee, as an add-on to SAP Enterprise Support, cloud editions. SAP Preferred Success is not available, and not provided, for any third-party cloud services purchased through SAP.

2.1.2. Beginning on the effective date of Customer's agreement for Cloud Services, Customer may contact SAP's support organization as the primary point of contact for support services.

2.1.3. Customer Interaction Center languages: SAP provides initial telephone contact for Customer Contacts through the SAP one support phone number "CALL-1-SAP" (see CALL-1-SAP page: https://support.sap.com/contactus) or via other solution specific hotlines in the following languages: English (24x7) and, depending on local office hours and availability, in German, French, Italian, Spanish, Polish, Russian (during European office hours); Japanese, Chinese, Korean, Bahasa (during Asia/Pacific office hours); Portuguese and Spanish (during Latin America office hours). Issues which lead to a support case which is processed by specialized technical or third party support engineers worldwide are handled in English only.

2.2. Mission Critical Support

Feature	SAP Enterprise Support, cloud editions	SAP Preferred Success
24x7 mission critical support for P1 and P2 cases (English only)	Global case handling by SAP for issues related to support, including Service Level Agreements for Initial Response, Ongoing Communications and Corrective Action Targets (as set forth in Section 3 below).	24x7 prioritized case handling and enhanced Initial Response and Corrective Action Targets (as set forth in Section 3 below).
Non-mission critical support for P3 and P4 cases (English only)	Available during Local Business Hours(as set forth in Section 3 below).	Enhanced Initial Response Targets (as set forth in Section 3 below).

Feature	SAP Enterprise Support, cloud editions	SAP Preferred Success
24x7 Customer interaction center	Support center that customers may contact for general support related inquiries through the contact channels described in Section 2.1.3.	Delivered as part of SAP Enterprise Support, cloud editions.
Global support backbone	SAP's knowledge database and extranet where SAP makes available content and services to customers and partners of SAP only. This includes SAP's Customer Support Website.	
End-to-end supportability	Support for cases that occur in integrated business scenarios consisting of SAP Cloud Services or both SAP Cloud Services and SAP Software with a valid SAP support agreement.	

2.3. Learning and Empowerment

Feature	SAP Enterprise Support, cloud editions	SAP Preferred Success
Remote SAP support content and services	Remote support content and services (e.g., Meet-the-Expert sessions) in various formats which may include live and recorded webinars, tutorials, best practices, self-paced learning materials and workshop-style interactive remote sessions. Content and session schedules are stated on SAP's Customer Support Website in the SAP Enterprise Support Academy section. Scheduling, availability and delivery methodology is at SAP's discretion.	Access to demo systems, live sessions with instructors, examinations and certifications specific to the Cloud Service for up to 5 Customer Contacts. SAP Preferred Success exclusive learning content related to the Cloud Service in various formats which may include live and recorded webinars, best practices, and workshop-style interactive remote sessions. Scheduling, availability and delivery methodology is at SAP's discretion.
Release update information	Generally available documented summaries, webinars and videos provided by SAP to inform and instruct customers on new product release changes. Self-service through web and community.	Release guidance specific to the Cloud Service.

2.4. Collaboration

Feature	SAP Enterprise Support, cloud editions	SAP Preferred Success
SAP support advisory services	Access to experts who help customers with support-related requests and advise on the appropriate SAP Enterprise Support content and services for their needs.	Delivered as part of SAP Enterprise Support, cloud editions.

Support via chat	Available during business hours in English language for non-Mission Critical Support issues, where available for the Cloud Service.	

Feature	SAP Enterprise Support, cloud editions	SAP Preferred Success
Support via web and platform for social business collaboration	Access to SAP's Customer Support Website, including social media-based empowerment and collaboration, with peers and SAP experts.	Access to exclusive SAP Preferred Success collaboration platform.
Support and success reporting	SAP Enterprise Support reporting: A report or dashboard analyzing and documenting the status of support services and achievements hereunder.	Reports, dashboards, or other reporting components and capabilities regarding the overall engagement, full customer lifecycle, and productive use of the solution, including relevant feature adoption, technical and product usage and status of support services and achievements hereunder, specific to the Cloud Service.
Preferred Success resources and guidance		Access to success resources to provide guidance on onboarding, product adoption and usage, best practices and operational excellence. This may include a customer success partner as the primary contact for ongoing success management, success planning, technical guidance and mentorship, and support case oversight throughout the Customer lifecycle. Assignment of a customer success partner is at SAP's discretion.
Regular checkpoint		Periodic review of Cloud Service, success plan, critical issues, reporting and best practices. May include in-person delivery, at SAP's discretion.
Success Plan		A success plan outlines steps towards achieving key business milestones and objectives throughout the customer lifecycle. Focus topics include challenges, consumption, adoption and cycle planning.

2.5. Innovation and Value Realization

Feature	SAP Enterprise Support, cloud editions	SAP Preferred Success
Proactive checks proposed by SAP	Support services, providing recommendations for the specific customer situation. Such services are delivered remotely upon Customer request.	Expert-led checks, providing recommendations based on SAP best practices or recommended configuration(s).
Product roadmaps	Self-service through web.	Delivered as part of SAP Enterprise Support, cloud editions.

Refresh of test instance	Self-service or request through web for initiating the refresh as offered and required by respective solution.	Delivered as part of SAP Enterprise Support, cloud editions.

2.6. Application Lifecycle Management

Feature	**SAP Enterprise Support, cloud editions**	**SAP Preferred Success**
Application lifecycle management ("**ALM**")	Software or online services for application lifecycle management made available by SAP. Feature scope and availability details are set forth on SAP's Customer Support Website (see: https://support.sap.com/en/alm) and usage rights (see: https://support.sap.com/en/alm/usage-rights).	Delivered as part of SAP Enterprise Support, cloud editions.

3. CUSTOMER RESPONSE LEVELS

3.1. SAP responds to submitted support cases as described in the table below.

Priority	**Definition**	**Response Level**
P1	Very High A case should be categorized with the priority "**very high**" if the problem has very serious consequences for normal business processes or IT processes related to core business processes. Urgent work cannot be performed. This is generally caused by the following circumstances: a) a productive service is completely down; b) the imminent system Go-Live or upgrade of a production system cannot be completed; c) the customer's core business processes are seriously affected A workaround is not available for each circumstance. The case requires immediate processing because the malfunction may cause serious losses.	Initial Response: Within 1 hour of case submission. Ongoing Communication: Unless otherwise communicated by SAP, once every hour. Corrective Action Target: SAP to provide for cases either a resolution; or workaround; or action plan within 4 hours.
P2	High A case should be categorized with the priority "**high**" if normal business processes are seriously affected. Necessary tasks cannot be performed. This is caused by incorrect or inoperable functions in the SAP service that are required immediately. The case is to be processed as quickly as possible because a continuing malfunction can seriously disrupt the entire productive business flow.	Initial Response: Within 4 hours of case submission for SAP Enterprise Support, cloud edition customers and within 2 hours of case submission for SAP Preferred Success customers. Ongoing Communication: Unless otherwise communicated by SAP, once every 6 hours. Corrective Action Target: SAP to provide for cases either a resolution; or workaround; or action plan within 3 business days for SAP Preferred Success customers only.
P3	Medium A case should be categorized with the priority "**medium**" if normal business processes are	Initial Response: Within 1 business day of case submission for SAP Enterprise Support, cloud edition customers, and within 4 business hours of case

Priority	Definition	Response Level
	affected. The problem is caused by incorrect or inoperable functions in the SAP service.	being received for SAP Preferred Success customers. Ongoing Communication: Unless otherwise communicated by SAP, once every 3 business days for non-defect Issues and 10 business days for product defect issues. A non-defect issue is a reported support case that does not involve a defect in the applicable Cloud Service and does not require engineering, development or operations personnel to resolve.
P4	Low A case should be categorized with the priority "**low**" if the problem has little or no effect on normal business processes. The problem is caused by incorrect or inoperable functions in the SAP service that are not required daily or are rarely used.	Initial Response: Within 2 business days of case submission for SAP Enterprise Support, cloud editions customers and within 1 business day of case submission for SAP Preferred Success customers. Ongoing Communication: Unless otherwise communicated by SAP, once every week.

3.2. The following types of cases are excluded from customer response levels as described above:

a) cases regarding a release, version or functionalities of Cloud Services developed specially for Customer (including those developed by SAP Custom Development or by SAP subsidiaries or individual content services);

b) the root cause behind the case is not a malfunction but missing functionality (development request);

c) the case is a consulting or how-to request.

4. CUSTOMER RESPONSIBILITIES

4.1. Customer Contact

4.1.1. Customer shall designate at least 2 and up to 5 qualified English-speaking contact persons per Cloud Service (each a "**Customer Contact**"). Customer Contacts include designated support contact, authorized support contact, key user, application administrator or system administrators whose roles within specific Cloud Services are authorized to contact or access the Customer Interaction Center, SAP Support Advisory Services and Mission Critical Support services.

4.1.2. The Customer Contact is responsible for managing all business-related tasks of the Cloud Service related to Customer's business, such as:

a) support end users and manage their cases. This includes searching for known solutions in available documentation and liaising with SAP in the event of new problems;

b) manage background jobs and the distribution of business tasks across users (if available);

c) manage and monitor connections to Customer's third-party systems (if available);

d) support the adoption of the Cloud Service.

4.2. Contact Details

Customer will provide contact details (in particular, e-mail address and telephone number) by which the Customer Contact or the authorized representative of the Customer Contact can be contacted at any time. SAP will use these contact details of the Customer Contact or the authorized representative of the Customer Contact and the contact details of any other senders of support cases in accordance with the SAP For Me privacy statement (https://me.sap.com/assets/legal/privacy.html) or the Built-In Support privacy statement (https://help.sap.com/docs/built-in-support/privacy-statement) if support cases are submitted via Built-In Support. Customer will update its Customer Contacts for a Cloud Service through SAP's Customer Support Website. Only authorized Customer Contacts may contact SAP's support organization.

4.3. Cooperation

Customer Contact shall reasonably cooperate with SAP to resolve support cases, and will have adequate technical expertise and knowledge of its configuration of the Cloud Services to provide relevant information to enable SAP to reproduce, troubleshoot and resolve the experienced error.

5. UPDATES

SAP may update the Support Schedule as long as it maintains a comparable or better level of support. SAP will publish the updated version of the Support Schedule on My Trust Center. Customer may subscribe to receive automated notification of any updates via My Trust Center accessible at https://support.sap.com/en/my-support/trust-center.html.

SERVICE LEVEL AGREEMENT FOR CLOUD SERVICES

1. DEFINITIONS

1.1. **"Credit"** means 2% of the Monthly Subscription Fees for the affected subscription-based Cloud Service or the monthly Cloud Credits (as defined in the Order Form) consumed for the affected consumption-based Cloud Service, for each 1% below the System Availability SLA, not to exceed 100% of the fees paid or Cloud Credit consumed by the Customer for the relevant Month for the affected Cloud Service.

1.2. "**Downtime**" means the Total Minutes in the Month during which the production version of the Cloud Service is not available, except for Excluded Downtimes.

1.3. "**Excluded Downtime**" means the Total Minutes in the Month attributable to a Maintenance Window; or any Major Upgrade Window for which the Customer has been notified at least 5 business days in advance; or unavailability caused by factors outside of SAP's reasonable control, such as unpredictable and unforeseeable events that could not have been avoided even if reasonable care had been exercised.

1.4. "**Maintenance Window**" means the weekly maintenance windows for the Cloud Service identified on https://support.sap.com/maintenance-windows. SAP may update the Maintenance Window from time to time in accordance with the Agreement.

1.5. **"Major Upgrade Window"** means the extended upgrade maintenance windows for the Cloud Service identified on https://support.sap.com/maintenance-windows. SAP may update the Major Upgrade Window from time to time in accordance with the Agreement.

1.6. "**Month**" means a calendar month.

1.7. "**Monthly Subscription Fees**" means the monthly (or 1/12 of the annual fee) subscription fees paid for the applicable Cloud Service which did not meet the System Availability SLA.

1.8. "**System Availability Percentage**" is calculated and defined as follows:

$$\left(\frac{\text{Total Minutes in the Month} - \text{Excluded Downtime} - \text{Downtime}}{\text{Total Minutes in the Month} - \text{Excluded Downtime}}\right) * 100$$

1.9. "**System Availability SLA"** means a 99.7% System Availability Percentage during each Month for the production version of the Cloud Service.

1.10. "**Total Minutes in the Month**" are measured 24 hours at 7 days per week during a Month.

1.11. "**UTC**" means Coordinated Universal Time standard is the start time for the applicable Maintenance Window and Major Upgrade Window.

2. SYSTEM AVAILABILITY SLA AND CREDITS

2.1. Credit

If SAP fails to meet the System Availability SLA for a particular Month, Customer may claim a Credit, which Customer may apply to a future invoice for the Cloud Service that did not meet the System Availability SLA (subject to Sections 2.1.1 and 2.1.2 below).

2.1.1. Claims for a Credit must be made in good faith and through a documented submission of a support case within 30 business days after the end of the relevant Month in which SAP did not meet the System Availability SLA for the Cloud Service.

2.1.2. Customers who have not subscribed to the Cloud Service directly from SAP must claim the Credit from their applicable SAP partner.

2.2. System Availability Report

SAP will provide Customer with a monthly report describing the System Availability Percentage for the Cloud Service either by email following a request to Customer's assigned SAP account manager; through the Cloud Service; or through an online portal made available to Customer, if and when such online portal is available.

3. CHANGES TO WINDOWS

3.1. SAP shall provide Customer 1 month's advance notice before changing its Maintenance and Major Upgrade Windows (unless such change is a reduction in the duration of the applicable Maintenance or Major Upgrade Windows). If Customer wishes to be notified of changes to Maintenance Windows and Major Upgrade Windows via email, it must subscribe to receive notifications at https://support.sap.com/maintenance-windows.

DATA PROCESSING AGREEMENT FOR CLOUD SERVICES

1. DEFINITIONS

1.1. "**Controller**" means the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of Personal Data; for the purposes of this DPA, where Customer acts as processor for another controller, it shall in relation to SAP be deemed as additional and independent Controller with the respective controller rights and obligations under this DPA.

1.2. "**Data Protection Law**" means the applicable legislation protecting the fundamental rights and freedoms of persons and their right to privacy with regard to the processing of Personal Data under the Agreement.

1.3. "**Data Subject**" means an identified or identifiable natural person as defined by Data Protection Law.

1.4. "**EEA**" means the European Economic Area, namely the European Union Member States along with Iceland, Liechtenstein and Norway.

1.5. "**GDPR**" means the General Data Protection Regulation 2016/679.

1.6. "**My Trust Center**" means information available on the SAP support portal (see: https://support.sap.com/en/my-support/trust-center.html) or the SAP agreements website (see: https://www.sap.com/about/trust-center/agreements.html) or any subsequent website(s) made available by SAP to Customer.

1.7. "**New SCC Relevant Transfer**" means a transfer (or an onward transfer) to a Third Country of Personal Data that is either subject to GDPR or to applicable Data Protection Law and where any required adequacy means under GDPR or applicable Data Protection Law can be met by entering into the New Standard Contractual Clauses.

1.8. "**New Standard Contractual Clauses**" means the unchanged standard contractual clauses, published by the European Commission, reference 2021/914 or any subsequent final version thereof which shall automatically apply. To avoid doubt Modules 2 and 3 shall apply as set out in Section 8.

1.9. "**Personal Data**" means any information relating to a Data Subject which is protected under Data Protection Law. For the purposes of the DPA, it includes only personal data which is:

a) entered by Customer or its Authorized Users into or derived from their use of the Cloud Service; or

b) supplied to or accessed by SAP or its Subprocessors in order to provide support under the Agreement. Personal Data is a sub-set of Customer Data (as defined under the Agreement).

1.10. "**Personal Data Breach**" means a confirmed:

a) accidental or unlawful destruction, loss, alteration, unauthorized disclosure of or unauthorized third-party access to Personal Data; or

b) similar incident involving Personal Data, in each case for which a Controller is required under Data Protection Law to provide notice to competent data protection authorities or Data Subjects.

1.11. "**Processor**" means a natural or legal person, public authority, agency or other body which processes personal data on behalf of the controller, be it directly as processor of a controller or indirectly as subprocessor of a processor which processes personal data on behalf of the controller.

1.12. "**Schedule**" means the numbered Appendix with respect to the Standard Contractual Clauses (2010) and the numbered Annex with respect to the New Standard Contractual Clauses.

1.13. "**Standard Contractual Clauses (2010)**" means the Standard Contractual Clauses (processors) published by the European Commission, reference 2010/87/EU.

1.14. "**Subprocessor**" or "**sub-processor**" means SAP Affiliates, SAP SE, SAP SE Affiliates and third parties engaged by SAP, SAP SE or SAP SE's Affiliates in connection with the Cloud Service and which process Personal Data in accordance with this DPA.

1.15. "**Technical and Organizational Measures**" means the technical and organizational measures for the relevant Cloud Service published on My Trust Center (see: https://www.sap.com/about/trust-center/agreements/cloud/cloud-services.html?search=Technical%20Organizational%20Measures).

1.16. "**Third Country**" means any country, organization or territory not acknowledged by the European Union under Article 45 of GDPR as a safe country with an adequate level of data protection.

2. BACKGROUND

2.1. Purpose and Application

2.1.1. This document ("**DPA**") is incorporated into the Agreement and forms part of a written (including in electronic form) contract between SAP and Customer.

2.1.2. This DPA applies to Personal Data processed by SAP and its Subprocessors in connection with its provision of the Cloud Service.

2.1.3. This DPA does not apply to non-production environments of the Cloud Service if such environments are made available by SAP. Customer shall not store Personal Data in such environments.

2.2. Structure

Schedules 1 and 2 are incorporated into and form part of this DPA. They set out the agreed subject-matter, the nature and purpose of the processing, the type of Personal Data, categories of data subjects (Schedule 1) and the applicable Technical and Organizational Measures (Schedule 2).

2.3. Governance

2.3.1. SAP acts as a Processor and Customer and those entities that it permits to use the Cloud Service act as Controllers under the DPA.

2.3.2. Customer acts as a single point of contact and shall obtain any relevant authorizations, consents and permissions for the processing of Personal Data in accordance with this DPA, including, where applicable approval by Controllers to use SAP as a Processor. Where authorizations, consent, instructions or permissions are provided by Customer these are provided not only on behalf of the Customer but also on behalf of any other Controller using the Cloud Service. Where SAP informs or gives notice to Customer, such information or notice is deemed received by those Controllers permitted by Customer to use the Cloud Service. Customer shall forward such information and notices to the relevant Controllers.

2.4. For the avoidance of doubt, nothing in this DPA (including without limitation, Section 1.2 "Data Protection Law", 1.4 "EEA", 1.5 "GDPR", 1.7 "New SCC relevant Transfer", 1.8 "New Standard Contractual Clauses", 1.13 "Standard Contractual Clauses (2010)" and Section 1.16 "Third Country" and Section 8, "International Processing" shall be construed as imposing GDPR compliance obligations on Customer in situations where Customer's use of the SAP Cloud Services would not otherwise subject Customer to GDPR requirements as a Controller.

3. SECURITY OF PROCESSING

3.1. Applicability of the Technical and Organizational Measures

SAP has implemented and will apply the Technical and Organizational Measures. Customer has reviewed such measures and agrees that as to the Cloud Service selected by Customer in the Order Form the measures are appropriate taking into account the state of the art, the costs of implementation, nature, scope, context and purposes of the processing of Personal Data.

3.2. Changes

3.2.1. SAP applies the Technical and Organizational Measures to SAP's entire customer base hosted out of the same data center or receiving the same Cloud Service. SAP may change the Technical and Organizational Measures at any time without notice so long as it maintains a comparable or better level of security. Individual measures may be replaced by new measures that serve the same purpose without diminishing the security level protecting Personal Data.

3.2.2. SAP will publish updated versions of the Technical and Organizational Measures on My Trust Center and where available Customer may subscribe to receive e-mail notification of such updated versions.

4. SAP OBLIGATIONS

4.1. Instructions from Customer

SAP will process Personal Data only in accordance with documented instructions from Customer. The Agreement (including this DPA) constitutes such documented initial instructions and each use of the Cloud Service then constitutes further instructions. SAP will use reasonable efforts to follow any other Customer instructions, as long as they are required by Data Protection Law, technically feasible and do not require changes to the Cloud Service. If any of the before-mentioned exceptions apply, or SAP otherwise cannot comply with an instruction or is of the opinion that an instruction infringes Data Protection Law, SAP will immediately notify Customer (email permitted).

4.2. Processing on Legal Requirement

SAP may also process Personal Data where required to do so by applicable law. In such a case, SAP shall inform Customer of that legal requirement before processing unless that law prohibits such information on important grounds of public interest.

4.3. Personnel

To process Personal Data, SAP and its Subprocessors shall only grant access to authorized personnel who have committed themselves to confidentiality. SAP and its Subprocessors will regularly train personnel having access to Personal Data in applicable data security and data privacy measures.

4.4. Cooperation

4.4.1. At Customer's request, SAP will reasonably cooperate with Customer and Controllers in dealing with requests from Data Subjects or regulatory authorities regarding SAP's processing of Personal Data or any Personal Data Breach.

4.4.2. If SAP receives a request from a Data Subject in relation to the Personal Data processing hereunder, SAP will promptly notify Customer (where the Data Subject has provided information to identify the Customer) via e-mail and shall not respond to such request itself but instead ask the Data Subject to redirect its request to Customer.

4.4.3. In the event of a dispute with a Data Subject as it relates to SAP's processing of Personal Data under this DPA, the Parties shall keep each other informed and, where appropriate, reasonably co-operate with the aim of resolving the dispute amicably with the Data Subject.

4.4.4. SAP shall provide functionality for production systems that supports Customer's ability to correct, delete or anonymize Personal Data from a Cloud Service, or restrict its processing in line with Data Protection Law. Where such functionality is not provided, SAP will correct, delete or anonymize any Personal Data, or restrict its processing, in accordance with the Customer's instruction and Data Protection Law.

4.5. Personal Data Breach Notification

SAP will notify Customer without undue delay after becoming aware of any Personal Data Breach and provide reasonable information in its possession to assist Customer to meet Customer's obligations to report a Personal Data Breach as required under Data Protection Law. SAP may provide such information in phases as it becomes available. Such notification shall not be interpreted or construed as an admission of fault or liability by SAP.

4.6. Data Protection Impact Assessment

If, pursuant to Data Protection Law, Customer (or its Controllers) are required to perform a data protection impact assessment or prior consultation with a regulator, at Customer's request, SAP will provide such documents as are generally available for the Cloud Service (for example, this DPA, the Agreement, Audit Reports and Certifications). Any additional assistance shall be mutually agreed between the Parties.

5. DATA EXPORT AND DELETION

5.1. Export and Retrieval by Customer

During the Subscription Term and subject to the Agreement, Customer can access its Personal Data at any time. Customer may export and retrieve its Personal Data in a standard format. Export and retrieval may be subject to technical limitations, in which case SAP and Customer will find a reasonable method to allow Customer access to Personal Data.

5.2. Deletion

Before the Subscription Term expires, Customer may use SAP's self-service export tools (as available) to perform a final export of Personal Data from the Cloud Service (which shall constitute a "return" of Personal Data). At the end of the Subscription Term, Customer hereby instructs SAP to delete the Personal Data remaining on servers hosting the Cloud Service within a reasonable time period in line with Data Protection Law (not to exceed 6 months) unless applicable law requires retention.

6. CERTIFICATIONS AND AUDITS

6.1. Customer Audit

Customer or its independent third party auditor reasonably acceptable to SAP (which shall not include any third party auditors who are either a competitor of SAP or not suitably qualified or independent) may audit SAP's control environment and security practices relevant to Personal Data processed by SAP only if:

a) SAP has not provided sufficient evidence of its compliance with the Technical and Organizational Measures that protect the production systems of the Cloud Service through providing either: (i) a certification as to compliance with ISO 27001 or other standards (scope as defined in the certificate); or (ii) a valid ISAE3402 or ISAE3000 or other SOC1-3 attestation report. Upon Customer's request audit reports or ISO certifications are available through the third party auditor or SAP;

b) a Personal Data Breach has occurred;

c) an audit is formally requested by Customer's data protection authority; or

d) provided under mandatory Data Protection Law conferring Customer a direct audit right and provided that Customer shall only audit once in any 12 month period unless mandatory Data Protection Law requires more frequent audits.

6.2. Other Controller Audit

Any other Controller may assume Customer's rights under Section 6.1 only if it applies directly to the Controller and such audit is permitted and coordinated by Customer. Customer shall use all reasonable means to combine audits of multiple other Controllers to avoid multiple audits.unless the audit must be undertaken by the other Controller itself under Data Protection Law. If several Controllers whose Personal Data is processed by SAP on the basis of the Agreement require an audit, Customer shall use all reasonable means to combine the audits and to avoid multiple audits.

6.3. Scope of Audit

Customer shall provide at least 60 days advance notice of any audit unless mandatory Data Protection Law or a competent data protection authority requires shorter notice. The frequency and scope of any audits shall be mutually agreed between the parties acting reasonably and in good faith. Customer audits shall be limited in time to a maximum of 3 business days. Beyond such restrictions, the parties will use current certifications or other audit reports to avoid or minimize repetitive audits. Customer shall provide the results of any audit to SAP.

6.4. Cost of Audits

Customer shall bear the costs of any audit unless such audit reveals a material breach by SAP of this DPA, then SAP shall bear its own expenses of an audit. If an audit determines that SAP has breached its obligations under the DPA, SAP will promptly remedy the breach at its own cost.

7. SUBPROCESSORS

7.1. Permitted Use

SAP is granted a general authorization to subcontract the processing of Personal Data to Subprocessors, provided that:

a) SAP or SAP SE on its behalf shall engage Subprocessors under a written (including in electronic form) contract consistent with the terms of this DPA in relation to the Subprocessor's processing of Personal Data. SAP shall be liable for any breaches by the Subprocessor in accordance with the terms of this Agreement;

b) SAP will evaluate the security, privacy and confidentiality practices of a Subprocessor prior to selection to establish that it is capable of providing the level of protection of Personal Data required by this DPA; and

c) SAP's list of Subprocessors in place on the effective date of the Agreement is published by SAP on My Trust Center or SAP will make it available to Customer upon request, including the name, address and role of each Subprocessor SAP uses to provide the Cloud Service.

7.2. New Subprocessors

SAP's use of Subprocessors is at its discretion, provided that:

a) SAP will inform Customer in advance (by email or by posting on the My Trust Center) of any intended additions or replacements to the list of Subprocessors including name, address and role of the new Subprocessor; and

b) Customer may object to such changes as set out in Section 7.3.

7.3. Objections to New Subprocessors

7.3.1. If Customer has a legitimate reason under Data Protection Law to object to the new Subprocessors' processing of Personal Data, Customer may terminate the Agreement (limited to the Cloud Service for which the new Subprocessor is intended to be used) on written notice to SAP. Such termination shall take effect at the time determined by the Customer which shall be no later than 30 days from the date of SAP's notice to Customer informing Customer of the new Subprocessor. If Customer does not terminate within this 30 day period, Customer is deemed to have accepted the new Subprocessor.

7.3.2. Within the 30 day period from the date of SAP's notice to Customer informing Customer of the new Subprocessor, Customer may request that the parties discuss in good faith a resolution to the objection. Such discussions shall not extend the period for termination and do not affect SAP's right to use the new Subprocessor(s) after the 30 day period.

7.3.3. Any termination under this Section 7.3 shall be deemed to be without fault by either party and shall be subject to the terms of the Agreement.

7.4. Emergency Replacement

SAP may replace a Subprocessor without advance notice where the reason for the change is outside of SAP's reasonable control and prompt replacement is required for security or other urgent reasons. In this case, SAP will inform Customer of the replacement Subprocessor as soon as possible following its appointment. Section 7.2 applies accordingly.

8. INTERNATIONAL PROCESSING

8.1. Conditions for International Processing

SAP shall be entitled to process Personal Data, including by using Subprocessors, in accordance with this DPA outside the country in which the Customer is located as permitted under Data Protection Law.

8.2. Applicability of the Standard Contractual Clauses (2010)

8.2.1. Where, for the period up to and including 26 September 2021, Personal Data of a Controller that is subject to GDPR is processed in a Third Country, or where Personal Data of a Swiss or United Kingdom based Controller

or another Controller is processed in a Third Country and such international processing requires an adequacy means under the laws of the country of the Controller and the required adequacy means can be met by entering into Standard Contractual Clauses (2010), then:

a) SAP and Customer enter into the Standard Contractual Clauses (2010);

b) Customer joins the Standard Contractual Clauses (2010) entered into by SAP or SAP SE and the Subprocessor as an independent owner of rights and obligations; or

c) other Controllers whose use of the Cloud Services has been authorized by Customer under the Agreement may also enter into Standard Contractual Clauses (2010) with SAP or the relevant Subprocessors in the same manner as Customer in accordance with Section 8.2.1 a) and b) above. In such case, Customer will enter into the Standard Contractual Clauses (2010) on behalf of the other Controllers.

8.2.2. The Standard Contractual Clauses (2010) shall be governed by the law of the country in which the relevant Controller is established.

8.2.3. Where applicable Data Protection Law adopts the New Standard Contractual Clauses as meeting any required adequacy means as an alternative or update to the Standard Contractual Clauses (2010) then the New Standard Contractual Clauses shall apply in accordance with Section 8.3.

8.3. Applicability of New Standard Contractual Clauses

8.3.1. The following shall apply with effect from 27 September 2021 and shall solely apply in respect of New SCC Relevant Transfers:

8.3.1.1. Where SAP is not located in a Third Country and acts as a data exporter, SAP (or SAP SE on its behalf) has entered in to the New Standard Contractual Clauses with each Subprocessor as the data importer. Module 3 (Processor to Processor) of the New Standard Contractual Clauses shall apply to such New SCC Relevant Transfers.

8.3.1.2. Where SAP is located in a Third Country:

SAP and Customer hereby enter into the New Standard Contractual Clauses with Customer as the data exporter and SAP as the data importer which shall apply as follows:

a) Module 2 (Controller to Processor) shall apply where Customer is a Controller; and

b) Module 3 (Processor to Processor) shall apply where Customer is a Processor. Where Customer acts as Processor under Module 3 (Processor to Processor) of the New Standard Contractual Clauses, SAP acknowledges that Customer acts as Processor under the instructions of its Controller(s).

8.3.2. Other Controllers or Processors whose use of the Cloud Services has been authorized by Customer under the Agreement may also enter into the New Standard Contractual Clauses with SAP in the same manner as Customer in accordance with Section 8.3.1.28.3.1.2 above. In such case, Customer enters into the New Standard Contractual Clauses on behalf of the other Controllers or Processors.

8.3.3. With respect to a New SCC Relevant Transfer, on request from a Data Subject to the Customer, Customer may make a copy of Module 2 or 3 of the New Standard Contractual Clauses entered into between Customer and SAP (including the relevant Schedules), available to Data Subjects.

8.3.4. The governing law of the New Standard Contractual Clauses shall be the law of Germany.

8.4. Relation of the Standard Contractual Clauses to the Agreement

Nothing in the Agreement shall be construed to prevail over any conflicting clause of the Standard Contractual Clauses (2010) or the New Standard Contractual Clauses. For the avoidance of doubt, where this DPA further specifies audit and Subprocessor rules, such specifications also apply in relation to the Standard Contractual Clauses (2010) and the New Standard Contractual Clauses.

8.5. Third Party Beneficiary Right under the New Standard Contractual Clauses

8.5.1. Where Customer is located in a Third Country and acting as a data importer under Module 2 or Module 3 of the New Standard Contractual Clauses and SAP is acting as Customer's sub-processor under the applicable Module, the respective data exporter shall have the following third party beneficiary right:

8.5.2. In the event that Customer has factually disappeared, ceased to exist in law or has become insolvent (in all cases without a successor entity that has assumed the legal obligations of the Customer by contract or by operation of law), the respective data exporter shall have the right to terminate the affected Cloud Service solely to the extent that the data exporter's Personal Data is processed. In such event, the respective data exporter also instructs SAP to erase or return the Personal Data.

9. DOCUMENTATION; RECORDS OF PROCESSING

9.1. Each party is responsible for its compliance with its documentation requirements, in particular maintaining records of processing where required under Data Protection Law. Each party shall reasonably assist the other party in its documentation requirements, including providing the information the other party needs from it in a manner reasonably requested by the other party (such as using an electronic system), in order to enable the other party to comply with any obligations relating to maintaining records of processing.

Schedule 1 Description of the Processing

This Schedule 1 applies to describe the Processing of Personal Data for the purposes of the Standard Contractual Clauses (2010), New Standard Contractual Clauses and applicable Data Protection Law.

1. A. LIST OF PARTIES

1.1. Under the Standard Contractual Clauses (2010)

1.1.1. Data Exporter

The data exporter under the Standard Contractual Clauses (2010) is the Customer who subscribed to a Cloud Service that allows Authorized Users to enter, amend, use, delete or otherwise process Personal Data. Where the Customer allows other Controllers to also use the Cloud Service, these other Controllers are also data exporters.

1.1.2. Data Importer

SAP and its Subprocessors that provide and support the Cloud Service are data importers under the Standard Contractual Clauses (2010).

1.2. Under the New Standard Contractual Clauses

1.2.1. Module 2: Transfer Controller to Processor

Where SAP is located in a Third Country, Customer is the Controller and SAP is the Processor, then Customer is the data exporter and SAP is the data importer.

1.2.2. Module 3: Transfer Processor to Processor

Where SAP is located in a Third Country, Customer is a Processor and SAP is a Processor, then Customer is the data exporter and SAP is the data importer.

2. B. DESCRIPTION OF TRANSFER

2.1. Data Subjects

Unless provided otherwise by the data exporter, transferred Personal Data relates to the following categories of Data Subjects: employees, contractors, business partners or other individuals having Personal Data stored in the Cloud Service, transmitted to, made available to, accessed or otherwise processed by the data importer.

2.2. Data Categories

The transferred Personal Data concerns the following categories of data:

Customer determines the categories of data per Cloud Service subscribed. Customer can configure the data fields during implementation of the Cloud Service or as otherwise provided by the Cloud Service. The transferred Personal Data typically relates to the following categories of data: name, phone numbers, e-mail address, address data, system access / usage / authorization data, company name, contract data, invoice data, plus any application-specific data that Authorized Users enter into the Cloud Service and may include bank account data, credit or debit card data.

2.3. Special Data Categories (if agreed)

2.3.1. The transferred Personal Data may comprise special categories of personal data set out in the Agreement ("**Sensitive Data**"). SAP has taken Technical and Organizational Measures as set out in Schedule 2 to ensure a level of security appropriate to protect also Sensitive Data.

2.3.2. The transfer of Sensitive Data may trigger the application of the following additional restrictions or safeguards if necessary to take into consideration the nature of the data and the risk of varying likelihood and severity for the rights and freedoms of natural persons (if applicable):

a) training of personnel;

b) encryption of data in transit and at rest;

c) system access logging and general data access logging.

2.3.3. In addition, the Cloud Services provide measures for handling of Sensitive Data as described in the Documentation.

2.4. Purposes of the data transfer and further processing; Nature of the processing

2.4.1. The transferred Personal Data is subject to the following basic processing activities:

a) use of Personal Data to set up, operate, monitor and provide the Cloud Service (including operational and technical support);

b) continuous improvement of service features and functionalities provided as part of the Cloud Service including automation, transaction processing and machine learning;

c) provision of embedded Professional Services;

d) communication to Authorized Users;

e) storage of Personal Data in dedicated data centers (multi-tenant architecture);

f) release, development and upload of any fixes or upgrades to the Cloud Service;

g) back up and restoration of Personal Data stored in the Cloud Service;

h) computer processing of Personal Data, including data transmission, data retrieval, data access;

i) network access to allow Personal Data transfer;

j) monitoring, troubleshooting and administering the underlying Cloud Service infrastructure and database;

k) security monitoring, network-based intrusion detection support, penetration testing; and

l) execution of instructions of Customer in accordance with the Agreement.

2.4.2. The purpose of the transfer is to provide and support the Cloud Service. SAP and its Subprocessors may support the Cloud Service data centers remotely. SAP and its Subprocessors provide support when a Customer submits a support ticket as further set out in the Agreement.

2.5. Additional description in respect of the New Standard Contractual Clauses:

2.5.1. Applicable Modules of the New Standard Contractual Clauses

a) Module 2: Transfer Controller to Processor

b) Module 3: Transfer Processor to Processor

2.5.2. For transfers to (sub-) processors, also specify subject matter, nature and duration of the processing

In respect of the New Standard Contractual Clauses, transfers to Subprocessors shall be on the same basis as set out in the DPA.

2.5.3. The frequency of the transfer (e.g. whether the data is transferred on a one-off or continuous basis).

Transfers shall be made on a continuous basis.

2.5.4. The period for which the personal data will be retained, or, if that is not possible, the criteria used to determine that period.

Personal Data shall be retained for the duration of the Agreement and subject to Section 5.2 of the DPA.

3. C. COMPETENT SUPERVISORY AUTHORITY

3.1. In respect of the New Standard Contractual Clauses:

3.1.1. Module 2: Transfer Controller to Processor

3.1.2. Module 3: Transfer Processor to Processor

3.2. Where Customer is the data exporter, the supervisory authority shall be the competent supervisory authority that has supervision over the Customer in accordance with Clause 13 of the New Standard Contractual Clauses.

Schedule 2 Technical and Organizational Measures

This Schedule 2 applies to describe the applicable technical and organizational measures for the purposes of the Standard Contractual Clauses (2010), New Standard Contractual Clauses and applicable Data Protection Law.

SAP will apply and maintain the Technical and Organizational Measures.

To the extent that the provisioning of the Cloud Service comprises New SCC Relevant Transfers, the Technical and Organizational Measures set out in Schedule 2 describe the measures and safeguards which have been taken to fully take into consideration the nature of the personal data and the risks involved. If local laws may affect the compliance with the clauses, this may trigger the application of additional safeguards applied during transmission and to the processing of the personal data in the country of destination (if applicable: encryption of data in transit, encryption of data at rest, anonymization, pseudonymization).

GENERAL TERMS AND CONDITIONS FOR SAP CLOUD SERVICES (for GSA indirect sales)
("Cloud GTC")

1. DEFINITIONS

1.1. "**Affiliate**" means any legal entity in which SAP SE or Customer, directly or indirectly, holds more than (fifty percent) 50% of the entity's shares or voting rights or controls or is under common control with that legal entity. "Control" means the direct or indirect possession of the power to direct or cause the direction of the management and policies of an entity, whether through ownership, by contract or otherwise. Any legal entity will be considered an Affiliate as long as that interest is maintained.

1.2. "**Agreement**" means the agreement as defined in the applicable Cloud Order Form. For clarity, some services may be performed under a statement of work, which statement of work will be governed by the terms and conditions of this Agreement.

1.3. "**Authorized User**" means any individual to whom Customer grants access authorization to use the Cloud Service that is an employee, agent, contractor or representative of Customer, Customer's Affiliates, or Customer's and Customer's Affiliates' Business Partners.

1.4. "**Business Partner**" means a legal entity that requires use of a Cloud Service in connection with Customer's and its Affiliates' internal business operations. These may include customers, distributors, service providers or suppliers of Customer and its Affiliates.

1.5. "**Cloud Order Form**" means the "Cloud Order Form for SAP Cloud Services" concluded between SAP and Reseller that references the Cloud GTC.

1.6. "**Cloud Service**" means any distinct, hosted, supported and operated on-demand solution provided by SAP to the Customer on behalf of the Reseller, under the Cloud Order Form.

1.7. "**Confidential Information**" means all information which the disclosing party protects against unrestricted disclosure to others that the disclosing party or its representatives designates as confidential, internal or proprietary at the time of disclosure, or should reasonably be understood to be confidential at the time of disclosure given the nature of the information and the circumstances surrounding its disclosure.

1.8. **"Customer"** means the entity or individual that has consented to this Agreement by execution of an agreement with Reseller that references this Cloud GTC or by any other legally binding method of acceptance of this Agreement.

1.9. "**Customer Data**" means any content, materials, data and information that Authorized Users enter into the production system of a Cloud Service or that Customer derives from its use of and stores in the Cloud Service (e.g. Customer-specific reports). Customer Data and its derivatives will not include SAP's Confidential Information.

1.10. "**Documentation**" means SAP's then-current technical and functional documentation, relating to the Cloud Services located at https://help.sap.com or which is made available to Customer as part of the Cloud Service, including technical and functional specifications as updated from time to time in accordance with the Agreement.

1.11. "**Export Laws**" means all applicable import, export control and sanctions laws, including without limitation, the laws of the United States, the EU, and Germany.

1.12. "**Feedback**" means input, comments or suggestions regarding SAP's business and technology direction, and the possible creation, modification, correction, improvement or enhancement of the Cloud Service.

1.13. "**Intellectual Property Rights**" means patents of any type, design rights, utility models or other similar invention rights, copyrights and related rights, trade secret, know-how or confidentiality rights, trademarks, trade names and service marks and any other intangible property rights, whether registered or unregistered, including applications (or rights to apply) and registrations for any of the foregoing, in any country, arising under statutory or common law or by contract and whether or not perfected, now existing or hereafter filed, issued, or acquired.

1.14. "**Reseller**" means the entity holding the Multiple Award Schedule contract and identified on the Cloud Order Form.

1.15. "**Representatives**" means a party's Affiliates, employees, contractors, sub-contractors, legal representatives, accountants, or other professional advisors.

1.16. **"SAP"** means the entity identified by the Cloud Order Form as providing the Cloud Service to Customer.

1.17. "**SAP Materials**" means any materials (including statistical reports) provided, developed or made available by SAP or via Reseller (independently or with Customer's or Reseller's cooperation) in the course of performance under the Agreement, including in the delivery of any support to Customer. SAP Materials do not include Customer Data, Customer Confidential Information or the Cloud Service. SAP Materials may also be referred to in the Agreement as "Cloud Materials".

1.18. "**SAP SE**" means SAP SE, the parent company of SAP.

1.19. "**Subscription Term**" means the initial subscription term and, if applicable, any renewal subscription term of a Cloud Service identified in the Cloud Order Form.

1.20. "**Usage Metric**" means the standard of measurement for determining the permitted use for a Cloud Service as set forth in a Cloud Order Form.

2. USAGE RIGHTS AND RESTRICTIONS

2.1. Grant of Rights

Subject to Reseller's payment of all fees due to SAP, SAP grants to Customer on behalf of Reseller, a non-exclusive and non-transferable right to use the Cloud Service (including its implementation and configuration), SAP Materials and Documentation solely for Customer's and its Affiliates' internal business operations. Customer may use the Cloud Service world-wide, except from countries where such use is prohibited by Export Laws. Permitted uses and restrictions of the Cloud Service also apply to SAP Materials and Documentation.

2.2. Authorized Users

Customer may permit Authorized Users to use the Cloud Service. Usage is limited to the Usage Metrics and volumes stated in the Cloud Order Form. Access credentials for the Cloud Service may not be used by more than one individual, but may be transferred from one individual to another if the original user is no longer permitted to use the Cloud Service. Customer is responsible for breaches of the Agreement caused by Authorized Users.

2.3. Verification of Use

Customer will monitor its own use of the Cloud Service and report any use in excess of the Usage Metrics and volume to Reseller. SAP may monitor use to verify compliance with Usage Metrics, volume and the Agreement. SAP will be permitted to forward any data regarding use in excess of the Usage Metrics, volume and the Agreement by Customer to Reseller. Further, such monitoring shall be contingent upon adherence to Customer's security requirements, including any requirement for personnel to be cleared prior to accessing sensitive IT systems or facilities. If Customer's security requirements are not met, then upon SAP's request, Customer will run a self-assessment with tools provided by, and at the direction of SAP to verify Customer's compliance with the terms of this Agreement.

2.4. Third Party Web Services

The Cloud Service may include integrations with web services made available by third parties (other than SAP SE or its Affiliates) that are accessed through the Cloud Service and subject to terms and conditions with those third parties. These third party web services are not part of the Cloud Service and the Agreement does not apply to them. SAP is not responsible for the content of these third party web services.

2.5. Mobile Access to Cloud Service

Authorized Users may access certain Cloud Services through mobile applications obtained from third-party websites such as Android or Apple app store. The use of mobile applications may be governed by the terms and conditions presented upon download/access to the mobile application and not by the terms of the Agreement.

2.6. On-Premise Components

The Cloud Service may include on-premise components that can be downloaded and installed (including updates) by Customer. The System Availability SLA does not apply to these components. Customer may only use the on-premise components during the Subscription Term.

3. SAP RESPONSIBILITIES

3.1. Provisioning

SAP provides access to the Cloud Service as described in the Agreement. SAP makes the Cloud Service available and is responsible for its operation.

3.2. Support

SAP provides support for the Cloud Service as referenced in the Cloud Order Form.

3.3. Security

SAP will implement and maintain appropriate technical and organizational measures to protect the personal data processed by SAP as part of the Cloud Service as described in the Data Processing Agreement incorporated in the Cloud Order Form in compliance with applicable data protection law.

3.4. Modifications

3.4.1. Scope

SAP may modify the Cloud Service (including support services, Maintenance Windows and Major Upgrade Windows), provided that SAP shall not materially degrade the core functionality of the Cloud Service during the Subscription Term. Any such modifications will not restrict or reduce the capabilities in existence at the time of execution of this Agreement without written concurrence from the Government Contracting Officer.

3.4.2. Modification Notices

SAP shall provide Customer with reasonable advance notice of modifications to the functionality of the Cloud Service in accordance with Section 13.4, except for any change to a Maintenance Window or Major Upgrade Window which shall be in accordance with the Service Level Agreement.

3.4.3. Customer Termination

If the modification materially degrades the Cloud Service and SAP does not provide equivalent functionality, Customer may terminate the Cloud Order Form for the affected Cloud Service by providing written notice to SAP and Reseller within 1 month of SAP's notice. If SAP does not receive timely notice, Customer is deemed to have accepted the modification.

4. CUSTOMER AND PERSONAL DATA

4.1. Customer Ownership

Customer retains all rights in and related to Customer Data. SAP may use Customer provided trademarks solely to provide and support the Cloud Service.

4.2. Customer Data

Customer is responsible for Customer Data and entering it into the Cloud Service. Customer grants to SAP (including SAP SE, its Affiliates and subcontractors) a non-exclusive right to process and use Customer Data to provide and support the Cloud Service and as set out in the Agreement.

4.3. Personal Data

Customer will collect and maintain all personal data contained in the Customer Data in compliance with applicable data privacy and protection laws.

4.4. Security

Customer will maintain reasonable security standards for its Authorized Users' use of the Cloud Service. Customer will not conduct or authorize penetration tests of the Cloud Service without advance approval from SAP.

4.5. Access to Customer Data

4.5.1. During the Subscription Term, Customer can access its Customer Data at any time. Customer may export and retrieve its Customer Data in a standard format. Export and retrieval may be subject to technical limitations, in which case SAP and Customer will find a reasonable method to allow Customer access to Customer Data.

4.5.2. Before the Subscription Term expires, Customer may use SAP's self-service export tools (as available) to perform a final export of Customer Data from the Cloud Service.

4.5.3. At the end of the Agreement, SAP will delete the Customer Data remaining on servers hosting the Cloud Service unless applicable law requires retention. Retained data is subject to the confidentiality provisions of the Agreement.

4.5.4. In the event of third party legal proceedings relating to Customer Data, SAP will cooperate with Customer and comply with applicable law (both at Customer's expense) with respect to handling of Customer Data.

5. RESELLER RELATIONSHIP, PRICES AND PAYMENT

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5.3. Independence of Reseller

Reseller is not an agent of SAP. Reseller is an independent entity with no authority to bind SAP or to make representations or warranties on SAP's behalf. SAP will not be liable for reasonably relying on the accuracy and reliability of written information provided by Reseller. Customer acknowledges and agrees that the Reseller through which Customer has arranged for the procurement of the Cloud Services is not an agent of SAP.

5.4. No Representations or Warranties

SAP makes no representations or warranties as to Reseller, any authorized distributor or other reseller, or any other third party, or related to the performance of their products or services, and fully disclaims any such warranties in accordance with Section 7.

5.5 Payment

Customer shall pay to Reseller on behalf of SAP the fees for the Cloud Service provided hereunder, in the amount as set forth in the agreement between Reseller and Customer, in accordance with the terms of the Cloud Order Form.

5.6 Renewal Term

The fees set forth in the Cloud Order Form will be fixed for the committed subscription term. Following the subscription term of a Cloud Order Form, the subscription may be renewed for one (1) year subscription terms (each, as applicable, a "Renewal Term") subject to funding and only for the agreed-upon subscription period by executing a written order for the Renewal Term. Pricing is established based upon the GSA Schedule Price List in effect at the time the Renewal Term is entered into. Either party may give the other party written notice (email acceptable) of non-renewal at least thirty (30) days prior to the end of the relevant subscription term.

5.7 Additions to Cloud Order Form

Customer may add additional Authorized Users or other applicable usage metrics during the term of the Cloud Order Form by executing an addendum or additional schedule with Reseller, as applicable, which shall then become an integral part of the amended Cloud Order Form. The term of each addendum or schedule shall be coterminous with the then-current term of the Cloud Order Form irrespective of the effective date of such addendum and all fees shall be prorated accordingly. Upon renewal of the Cloud Order Form, the term for all Authorized Users or other fee-based metric added to the Cloud Order Form prior to renewal shall be the same as specified in the Cloud Order Form.

5.8 Excess Use

Customer is responsible for monitoring its use of the Service. Customer shall promptly report to SAP any actual use in excess of the number of Authorized Users (or other applicable usage metric authorized in the Cloud Order Form). SAP shall be entitled to monitor Customer's number of Authorized Users (or other applicable usage metric authorized in the Cloud Order Form) regarding usage of the Cloud Service to ensure Customer's compliance with the Agreement. SAP shall be permitted to forward such data to Reseller. SAP shall invoice Reseller and Customer shall have the opportunity to execute an agreement with Reseller to pay for any usage in excess of the usage metrics set forth in the applicable Cloud Order Form. Such fees shall accrue from the date the excess use began. For the avoidance of doubt, Customer shall not be entitled to claim any reduction of the fees payable under the Cloud Order Form or reduce the Authorized Users (or other applicable usage metric) during the term of a Cloud Order Form or renewal.

5.9 No Cancellation

Except as expressly set forth in this Agreement, FAR 52.212-4(l), or the Cloud Order Form, all purchases of subscriptions hereunder are non-cancelable and all fees incurred prior to the termination date are non-refundable.

6. TERM AND TERMINATION

6.1 Term

The term of this Agreement begins on the Effective Date set forth in the applicable Cloud Order Form and shall continue in effect as described in the Cloud Order Form. Termination of individual Cloud Order Forms shall leave other Cloud Order Forms unaffected.

6.2 Termination

Recourse against the United States for any alleged breach of this Agreement must be made under the terms of the Federal Tort Claims Act or as a dispute under the contract disputes clause (Contract Disputes Act, 41 U.S.C. Chapter 71) as applicable. SAP shall proceed diligently with performance of this Agreement, pending final resolution of any request for relief, claim, appeal, or action arising under the Agreement, and comply with any decision of the Customer. The Agreement shall terminate immediately upon a final judgment obtained under the Contracts Disputes Act terminating the Agreement for Customer's material breach of any provision of the Agreement.

SAP may, in its reasonable determination, deactivate Customer's user name(s) and password(s) and/or temporarily suspend access to the Cloud Service or a portion thereof, if and to the extent SAP can substantiate that the continued use of the Cloud Service may result in harm to the Cloud Service (including the security of the systems used to provide the Cloud Service) or other SAP customers, or the rights of third parties, upon prior written notice to Customer as the circumstances permit.

6.3 Effect of Expiration or Termination

Upon the effective date of termination, Customer's access to the Cloud Service will be terminated. Customer shall have the ability to access its Customer Data at any time during the subscription term set forth in the applicable Order Form, unless earlier terminated pursuant to this Article 6. Customer may export and retrieve its Customer Data during a subscription term, which will be subject to technical limitations caused by factors such as (i) the availability of self-service extraction tools compatible with the Cloud Service, (ii) the size of Customer's instance of the Cloud Service; and (iii) the frequency and/or timing of the export and retrieval.

6.4 Survival

Articles 5, 8, 9, 10, 11, 12 and 13 shall survive the expiration or termination of this Agreement.

7. WARRANTIES

7.1. Compliance with Law

Each party warrants its current and continuing compliance with all laws and regulations applicable to it in connection with:

(a) In the case of SAP, the operation of SAP's business as it relates to the Cloud Service; and

(b) In the case of Customer, Customer Data and Customer's use of the Cloud Service.

7.2. Good Industry Practices

SAP warrants that it will provide the Cloud Service:

(a) in substantial conformance with the Documentation; and

(b) with the degree of skill and care reasonably expected from a skilled and experienced global supplier of services substantially similar to the nature and complexity of the Cloud Service.

7.3. Remedy

7.3.1. Provided Customer (or Reseller on Customer's behalf) notifies SAP in writing with a specific description of the Cloud Service's non-conformance with the warranty in Section 7.2 without undue delay and SAP validates the existence of such non-conformance, SAP will, at its option and in accordance with Section 7.3.3:

(a) correct or replace the non-conforming Cloud Service, or

(b) if SAP fails to correct the non-conformance after using reasonable commercial efforts, terminate the access to the non-conforming Cloud Service.

7.3.2. The remedies in Section 7.3.1 do not apply to trivial or non-material cases of non-conformance and are Customer's sole and exclusive remedies and SAP's entire liability for breach of the warranty under Section 7.2. The written notification of any non-conformance by Customer (or Reseller on Customer's behalf) must include sufficient detail for SAP to analyze the alleged non-conformance. Customer must provide commercially reasonable assistance to SAP in analyzing and remediating any non-conformance of the Cloud Service.

7.3.3. SAP will consult with Reseller to define a reasonable amount:

(a) by which Reseller may reduce the subscription fees for the non-conforming Cloud Services, in case Reseller has not already paid them, or

(b) if Reseller has already paid the subscription fees for the non-conforming Cloud Services, which SAP will refund to Reseller to reflect the non-conformance (unless such refund is prohibited by Export Laws).

7.3.4. SAP may fulfill its warranty obligations with Customer or Reseller on Customer's behalf. To the extent that SAP fulfills its warranty obligations under Section 7.3.3 via Reseller, Customer will not have any claim against SAP for a breach of the warranty in Section 7.2.

7.4. System Availability

7.4.1. SAP warrants to maintain an average monthly system availability for the production system of the Cloud Service as defined in the applicable Service Level Agreement or Supplement ("**SLA**").

7.4.2. Customer's sole and exclusive remedy for SAP's breach of the SLA is the issuance of a credit as described in the SLA, whereby the service level credit will be calculated based on the non-discounted subscription fee set out in the order form agreed between SAP and Reseller. Customer must notify Reseller in writing (email permitted) within 21 business days after each calendar month in which SAP does not meet the SLA, so that Reseller can follow SAP's posted credit claim procedure. When the validity of the service credit is confirmed by SAP in writing (email permitted) to Reseller, SAP will issue the credit to Reseller to forward to Customer.

7.5. Warranty Exclusions

The warranties in Sections 7.2 and 7.4 will not apply if:

(a) the Cloud Service is not used in accordance with the Agreement or Documentation;

(b) any non-conformity is caused by Reseller, Customer, another third party, or by any product, database, content or service not provided by SAP; or

(c) the Cloud Service was provided for no fee or is a trial license of the Cloud Service.

7.6. Disclaimer

Except as expressly provided in the Agreement, neither SAP nor its subcontractors make any representation or warranties, express or implied, statutory or otherwise, regarding any matter, including the merchantability, suitability, originality, or fitness for a particular use or purpose, non-infringement or results to be derived from the use of or integration with any products or services provided under the Agreement, or that the operation of any products or services will be secure, uninterrupted or error free. Customer agrees that it is not relying on

delivery of future functionality, public comments or advertising of SAP or product roadmaps in obtaining subscriptions for any Cloud Service.

8. THIRD PARTY CLAIMS

8.1. Claims Brought Against Customer

8.1.1. SAP will defend Customer against claims brought against Customer and its Affiliates by any third party alleging that Customer's and its Affiliates' use of the Cloud Service infringes or misappropriates a patent claim, copyright or trade secret right. SAP will indemnify Customer against all damages finally awarded against Customer (or the amount of any settlement SAP enters into) with respect to these claims.

8.1.2. SAP's obligations under Section 8.1 will not apply if the claim results from:

(a) use of the Cloud Service in conjunction with any product or service not provided by SAP;

(b) use of the Cloud Service provided for no fee;

(c) any use of the Cloud Service not permitted under the Agreement.

8.1.3. If a third party makes a claim or in SAP's reasonable opinion is likely to make such a claim, SAP may at its sole option and expense:

(a) procure for Customer the right to continue using the Cloud Service under the terms of the Agreement; or

(b) replace or modify the Cloud Service to be non-infringing without a material decrease in functionality.

If these options are not reasonably available, SAP may terminate Customer's subscription to the affected Cloud Service upon written notice.

8.1.4. SAP expressly reserves the right to cease such defense of any claim(s) if the applicable Cloud Service is no longer alleged to infringe or misappropriate the third party's rights.

8.2. Customer Responsibilities

Customer shall be responsible for (i) any use of the Cloud Service in violation of any applicable law or regulation; or (ii) an allegation that the Customer Data or Customer's use of the Cloud Service in violation of this Agreement violates, infringes or misappropriates the rights of a third party. The foregoing shall apply regardless of whether such damage is caused by the conduct of Customer and/or its Authorized Users or by the conduct of a third party using Customer's access credentials.

8.3. Conditions

The obligations under this Article 8 are conditioned on (a) the Customer timely notifying SAP in writing of any such claim, provided however that a party's failure to provide or delay in providing such notice shall not relieve a party of its obligations under this Article 8 except to the extent such failure or delay prejudices the defense (b) the party who is obligated hereunder to defend a claim having the right to control the defense of such claim to the extent permitted by 28 U.S.C. §516; and (c) the party against whom a third party claim is brought reasonably cooperating in the defense of such claim. Any settlement of any claim shall not include a financial or specific performance obligation on or admission of liability by the party against whom the claim is brought, provided however that SAP may settle any claim on a basis requiring SAP to substitute for the Cloud Service any alternative substantially equivalent non-infringing services. SAP will have the opportunity to intervene in any suit or claim filed against the Customer, at its own expense, through counsel of its own choosing. Neither party shall undertake any action in response to any infringement or misappropriation, or alleged infringement or misappropriation that is prejudicial to the other party's rights. Nothing contained herein shall be construed in derogation of the U.S. Department of Justice's right to defend any claim or action brought against the U.S., pursuant to its jurisdictional statute 28 U.S.C. §516.

8.4. Exclusive Remedy

The provisions of Section 8 state the sole, exclusive, and entire liability of the parties, their Affiliates, Business Partners and subcontractors to the other party, and is the other party's sole remedy, with respect to covered third party claims and to the infringement or misappropriation of third party intellectual property rights.

9. LIMITATION OF LIABILITY

9.1. No Liability

9.1.1. SAP, its licensors or subcontractors will not be responsible or liable under the Agreement:

(a) if a Cloud Service is not used in accordance with the Documentation;

(b) if the defect or liability is caused by Reseller, Customer or any third party product or service;

(c) if the Cloud Service is used in conjunction with any product or service not provided by SAP;

(d) for any Customer activities not permitted under the Agreement; or

(e) for any claims or damages arising from inherently dangerous use of any of the Cloud Services provided under or in connection with the Agreement.

9.2. No Cap on Liability

Neither party's liability is capped for damages resulting from:

(a) the parties' obligations under Sections 8.1.1 or 8.2 (excluding SAP's obligation under Section 8.1.1 where the third party claim(s) relates to Cloud Services not developed by SAP);

(b) death or bodily injury arising from either party's gross negligence or willful misconduct; and/ or

(c) Customer's unauthorized use of any Cloud Service or any failure by Customer to pay Reseller any fees due for the Cloud Services.

9.3. Liability Cap

Except as set forth in Section 9.1, the maximum aggregate liability of either party (or its respective Affiliates or SAP's subcontractors) to the other or to any other person or entity for all events (or series of connected events) arising in any twelve (12)-month period will not exceed the annual subscription fees paid by Customer to Reseller for the applicable Cloud Service associated with the damages for that twelve (12)-month period. Any "twelve (12)-month period" commences on the Subscription Term start date or any of its yearly anniversaries. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION SHALL BE DEEMED TO IMPAIR THE U.S. GOVERNMENT'S RIGHT TO RECOVER FOR FRAUD OR CRIMES ARISING OUT OF, OR RELATED TO, THIS AGREEMENT UNDER ANY FEDERAL FRAUD STATUTE, INCLUDING THE FALSE CLAIMS ACT, 31 U.S.C. §§ 3729-3733.

9.4. Exclusion of Damages

In no case will:

(a) either party (or its respective Affiliates or SAP's subcontractors) be liable to the other party for any special, incidental, consequential, or indirect damages, loss of goodwill or business profits, work stoppage or for exemplary or punitive damages; and

(b) SAP be liable for any damages caused by any Cloud Service provided for no fee.

9.5. Extension to group members

Any limitations to the liability and obligations of SAP according to this Section 9 will also apply for the benefit of SAP SE and any of its Affiliates and their respective licensors.

9.6. SAP will not be obliged to provide an indemnity or damages where Customer has been fully compensated or indemnified for the same loss or damage under its agreement with Reseller.

10. INTELLECTUAL PROPERTY RIGHTS

10.1. SAP Ownership

10.1.1. Except for any rights expressly granted to Customer under the Agreement, SAP, SAP SE, their Affiliates or licensors own all Intellectual Property Rights in and any derivative works of:

(a) the Cloud Service;

(b) SAP Materials;

(c) Documentation; and

(d) any services, design contributions, related knowledge or processes, whether or not developed for Customer.

Customer shall execute such documentation and take such other steps as is reasonably necessary to secure SAP's or SAP SE's title over such rights.

10.2. Acceptable Use Policy

With respect to the Cloud Service, Customer will not:

(a) copy, translate, disassemble, decompile, make derivative works, or reverse-engineer the Cloud Service or SAP Materials (or attempt any of the foregoing);

(b) enter, store, or transfer any content or data on or via the Cloud Service that is unlawful or infringes any Intellectual Property Rights;

(c) circumvent or endanger its operation or security of the Cloud Service; or

(d) remove SAP's copyright and authorship notices.

11. CONFIDENTIALITY

11.1. Use of Confidential Information

11.1.1. The receiving party shall:

(a) maintain all Confidential Information of the disclosing party in strict confidence, taking steps to protect the disclosing party's Confidential Information substantially similar to those steps that the receiving party takes to protect its own Confidential Information, which shall not be less than a reasonable standard of care;

(b) not disclose or reveal any Confidential Information of the disclosing party to any person other than its Representatives whose access is necessary to enable it to exercise its rights or perform its rights or perform its obligations under the Agreement and who are under obligations of confidentiality substantially similar to those in Section 11;

(c) not use or reproduce any Confidential Information of the disclosing party for any purpose outside the scope of the Agreement; and

(d) retain any and all confidential, internal, or proprietary notices or legends which appear on the original and on any reproductions.

11.1.2. Customer shall not disclose any information about the Agreement, its terms and conditions, the pricing or any other related facts to any third party.

11.1.3. Confidential Information of either party disclosed prior to execution of the Agreement will be subject to Section 11.

11.2. Compelled Disclosure

The receiving party may disclose the disclosing party's Confidential Information to the extent required by law, regulation, court order or regulatory agency; provided, that the receiving party required to make such a disclosure uses reasonable efforts to give the disclosing party reasonable prior notice of such required disclosure (to the extent legally permitted) and provides reasonable assistance in contesting the required disclosure, at the request and cost of the disclosing party. The receiving party and its Representatives shall use commercially reasonable efforts to disclose only that portion of the Confidential Information which is legally requested to be disclosed and shall request that all Confidential Information that is so disclosed is accorded confidential treatment. Federal agencies are subject to the Freedom of Information Act, 5 U.S.C. § 552, which requires that information that does not fall under certain exceptions must be released when requested and, therefore, some information may be released despite being characterized as "confidential" by the disclosing party.

11.3. Exceptions

The restrictions on use or disclosure of Confidential Information will not apply to any Confidential Information that:

(a) is independently developed by the receiving party without reference to the disclosing party's Confidential Information;

(b) has become generally known or available to the public through no act or omission by the receiving party;

(c) at the time of disclosure, was known to the receiving party free of confidentiality restrictions;

(d) is lawfully acquired free of restriction by the receiving party from a third party having the right to furnish such Confidential Information; or

(e) the disclosing party agrees in writing is free of confidentiality restrictions.

11.4. Destruction and Return of Confidential Information

Upon the disclosing party's request, the receiving party shall promptly destroy or return the disclosing party's Confidential Information, including copies and reproductions of it. The obligation to destroy or return Confidential Information shall not apply:

(a) if legal proceedings related to the Confidential Information prohibit its return or destruction, until the proceedings are settled or a final judgment is rendered;

(b) to Confidential Information held in archive or back-up systems under general systems archiving or backup policies; or

(c) to Confidential Information the receiving party is legally entitled or required to retain.

12. FEEDBACK

Customer may at its sole discretion and option provide SAP with Feedback. In such instance, SAP, SAP SE and its Affiliates may in their sole discretion retain and freely use, incorporate or otherwise exploit such Feedback without restriction, compensation or attribution to the source of the Feedback.

13. MISCELLANEOUS

13.1. Severability

If any provision of the Agreement is held to be wholly or in part invalid or unenforceable, the invalidity or unenforceability will not affect the other provisions of the Agreement. No Waiver

A waiver of any breach of the Agreement is not deemed a waiver of any other breach.

13.2. Electronic Signature

Electronic signatures that comply with applicable law are deemed original signatures.

13.3. Trade Compliance

13.3.1. SAP and Customer shall comply with Export Laws in the performance of this Agreement. SAP Confidential Information is subject to Export Laws. Customer, its Affiliates, and Authorized Users shall not directly or indirectly export, re-export, release, or transfer Confidential Information in violation of Export Laws. Customer is solely responsible for compliance with Export Laws related to Customer Data, including obtaining any required export authorizations for Customer Data. Customer shall not use the Cloud Service from Crimea/Sevastopol, Cuba, Iran, the People's Republic of Korea (North Korea), the so-called Luhansk Peoples Republic (LNR) and Donetsk Peoples Republic (DNR) or Syria.

13.3.2. Upon SAP's request, Customer shall provide information and documents to support obtaining an export authorization. Upon written notice to Customer SAP may immediately terminate Customer's subscription to the affected Cloud Service if:

(a) the competent authority does not grant such export authorization within 18 months; or

(b) Export Laws prohibit SAP from providing the Cloud Service to Customer.

13.4. Notices

All notices will be in writing and given when delivered to the address set forth in a Cloud Order Form. Notices from SAP to Customer may be in the form of an electronic notice to Customer's authorized representative or administrator. SAP may provide notice of modifications to the Cloud Service under Section 3.4.2 via Documentation, release notes or publication. System notifications and information from SAP relating to the

operation, hosting or support of the Cloud Service can also be provided within the Cloud Service, or made available via the SAP Support Portal.

13.5. Assignment

Customer may not, without SAP's prior written consent, assign, delegate, pledge or otherwise transfer this Agreement, or any of its rights or obligations under this Agreement, or any SAP materials or SAP Confidential Information, to any party, whether voluntarily or by operation of law, including by way of sale of assets, merger or consolidation. Assignment by SAP is subject to FAR 52.232-23 "Assignment of Claims" (May 2014) and FAR subpart 42.12 "Novation and Change-of-Name Agreements."

13.6. Subcontracting

SAP may subcontract parts of the Cloud Service to third parties. SAP is responsible for breaches of the Agreement caused by its subcontractors.

13.7. Relationship of the Parties

The parties are independent contractors, and no partnership, franchise, joint venture, agency, fiduciary or employment relationship between the parties is created by the Agreement.

13.8. Force Majeure

In accordance with GSAR 552.212-4(f), Any delay in performance (other than for the payment of amounts due) caused by conditions beyond the reasonable control of the performing party is not a breach of the Agreement. The time for performance will be extended for a period equal to the duration of the conditions preventing performance.

13.9. Governing Law

This Agreement and any claims arising out of or relating to this Agreement and its subject matter shall be governed by and construed under United States Federal law. Venue and statute of limitations shall be established by applicable Federal law. The United Nations Convention on Contracts for the International Sale of Goods and any conflicts of law principles and the Uniform Computer Information Transactions Act (where enacted) will not apply to the Agreement.

13.10. Waiver of Right to Jury Trial

Each party waives any right it may have to a jury trial for any claim or cause of action arising out of or in relation to the Agreement.

13.11. Entire Agreement

The Agreement constitutes the complete and exclusive statement of the agreement between SAP and Customer in connection with the parties' business relationship related to the subject matter of the Agreement. All previous representations, discussions, and writings (including any confidentiality agreements) are merged in and superseded by the Agreement and the parties disclaim any reliance on them. The Agreement may be modified solely in writing signed by both parties, except as permitted under Section 3.4. This Agreement, however, shall not take precedence over any specific, negotiated terms contained in a Cloud Order Form. Terms and conditions of any Customer-issued purchase order shall have no force and effect, even if SAP accepts or does not otherwise reject the purchase order.

Metropolitan Transit System

Agenda Item No. 11

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Darktrace Subscription Renewal 5 Year – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3206.0-26 (in substantially the same format as Attachment A), with Nth Generation Computing, Inc. (Nth), to provide Darktrace subscription renewal, for a contract period of three (3) base years and two (2) 1-year options, in the amount of $1,840,384.40, (inclusive of $7,234.40 sales tax for taxable items as denoted on Attachment B).

Budget Impact

The total cost of this contract is estimated to be $1,840,384.40, (inclusive of $7,234.40 sales tax for taxable items as denoted on the bid form) (Attachment B). The contract will be funded by the Information Technology (IT) Operating Budget as follows:

Budget Account	Amount
661010-234000 (non-taxable amount)	$1,739,803.25
661010-571250 (taxable amount)	$93,346.75
661010-571250 (sales tax)	$7,234.40
Total Contract Amount:	**$1,840,384.40**

DISCUSSION:

MTS, like other public-sector agencies, faces increasing cybersecurity risks due to the growing scale, complexity, and connectivity of its operational and information technology environments. The expansion of networked devices and cloud-based services exposes MTS to risks such as data theft, service disruption, vandalism, and potential real-world impacts on critical infrastructure.

To address these risks, the MTS Information Security and Intelligence (ISI) team requires advanced cybersecurity tools that deliver real-time visibility, threat detection, and response capabilities across both on-premises and cloud environments. MTS ISI implemented Darktrace as its primary Intrusion Detection System (IDS) and Intrusion Prevention System (IPS) solution. Darktrace utilizes Artificial Intelligence (AI) to establish a baseline of normal network behavior

and detect threats through behavioral anomaly analysis, including previously unknown attacks and insider threats.

In parallel, MTS relies heavily on Microsoft 365 services (including SharePoint, OneDrive, and Teams), where direct control over user behavior is limited. As a result, enhanced cloud-based detection and response capabilities are essential to protect against unauthorized access, data exfiltration, and account compromise.

On April 24, 2026, MTS issued an Invitation for Bids (IFB) to procure the renewal of our Darktrace software subscriptions and hardware maintenance. A total of six (6) bids were received by the due date of May 14, 2026. Two (2) of the six (6) bidders were deemed non-responsive for failing to bid on all five (5) years.

Below is a summary of the bids received:

Bidder Name	Total Bid Amount***	Certifications
MTS Independent Cost Estimate (ICE)	$1,765,141.80	N/A
vCloud Tech Inc**	$1,387,253.58	N/A
vPrime Tech Inc**	$1,410,252.30	N/A
Nth Generation Computing Inc*	**$1,833,150.00**	N/A
Kambrian Corporation	$2,373,200.00	Women-Owned Small Business (WOSB) Minority Business Enterprise (MBE) Women-Owned Business (WBE)
The Drala Project Inc	$2,375,520.50	N/A
Questivity Inc	$2,456,000.00	Small Business (SB)

**Lowest responsive and responsible Bidder **Non-responsive ***These totals do not include taxes*

Nth met all solicitation requirements; therefore, staff deemed Nth to be the lowest responsive and responsible bidder. Their bid has been determined to be fair and reasonable based on a comparison of all bids received.

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute MTS Doc. No. G3206.0-26 (in substantially the same format as Attachment A), with Nth, to provide Darktrace subscription renewal, for a contract period of three (3) base years and two (2) 1-year options, in the amount of $1,840,384.40 (inclusive of $7,234.40 sales tax for taxable items as denoted on Attachment B).

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. Draft Agreement, MTS Doc. No. G3206.0-26
B. Bid Form
C. Scope of Work

Metropolitan Transit System

STANDARD AGREEMENT
FOR

MTS DOC. NO. G3206.0-26

DARKTRACE SUBSCRIPTION RENEWAL

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: Nth Generation Computing, Inc. Address: 17055 Camino San Bernardo
San Diego, CA 92127

Form of Business: Corporation
(Corporation, Partnership, Sole Proprietor, etc.) Email: bids@nth.com

Telephone: (858) 451-2383

Authorized person to sign contracts Joyce Russell (Name) EVP/CFO (Title)

The Contractor agrees to provide services as specified in the conformed Scope of Work/Minimum Technical Specification (Exhibit A), Contractor's Bid/Pricing Form (Exhibit B), and in accordance with the Standard Agreement, including Standard Conditions (Exhibit C), and Forms (Exhibit D).

The contract term is for up to 3 base years and 2 option years, exercisable at MTS's sole discretion, for a total of 5 years. Base period shall be effective July 16, 2026 through July 15, 2029 and option years shall be effective July 16, 2029 through July 15, 2031, if exercised by MTS.

Payment terms shall be net 30 days from invoice date. The total cost of this contract shall not exceed $1,104,230.64 for the base years and $736,153.76 for the option years, for a contract total not to exceed $1,840,384.40, inclusive of an estimated 7.75% tax, without the express written consent of MTS.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM	NTH GENERATION COMPUTING, INC.
By: _____ Sharon Cooney, Chief Executive Officer	By _____
Approved as to form: By: _____ Karen Landers, General Counsel	Title: _____

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

Metropolitan Transit System

DARKTRACE SUBSCRIPTION RENEWAL 5 YEAR IFB - BID FORM

MTS Doc. No. G3206.0-26

Proposer Name: Nth Generation Computing, Inc.

Manufacturer Part Number	Description	Quantity	Unit of Measure	Unit Price	Extended Price	
Year 1 (7/16/2026 - 7/15/2027)						
DT-PL-PD-NE-0008000	Darktrace/NETWORK	8000	Devices	$ -	$ 366,630.00	
DT-PL-PD-EM-EX 0001100	Darktrace/EMAIL	1100	Users	$ -	included	
DT-PL-PD-ID-0001800	Darktrace/IDENTITY	1595	Users	$ -	included	
DT-DP-PH-X2	Appliance (X2)	1	Device	$ -	included	T
DT-DP-PH-Z	Appliance (Z)	1	Device	$ -	included	T
DT-DP-PH-ME	Appliance (Medium)	1	Device	$ -	included	T
				Year 1 Total	$ 366,630.00	
Year 2 (7/16/2027 - 7/15/2028)						
DT-PL-PD-NE-0008000	Darktrace/NETWORK	8000	Devices	$ -	$ 366,630.00	
DT-PL-PD-EM-EX 0001100	Darktrace/EMAIL	1100	Users	$ -	included	
DT-PL-PD-ID-0001800	Darktrace/IDENTITY	1595	Users	$ -	included	
DT-DP-PH-X2	Appliance (X2)	1	Device	$ -	included	T
DT-DP-PH-Z	Appliance (Z)	1	Device	$ -	included	T
DT-DP-PH-ME	Appliance (Medium)	1	Device	$ -	included	T
				Year 2 Total	$ 366,630.00	
Year 3 (7/16/2028 - 7/15/2029)						
DT-PL-PD-NE-0008000	Darktrace/NETWORK	8000	Devices	$ -	$ 366,630.00	
DT-PL-PD-EM-EX 0001100	Darktrace/EMAIL	1100	Users	$ -	included	
DT-PL-PD-ID-0001800	Darktrace/IDENTITY	1595	Users	$ -	included	
DT-DP-PH-X2	Appliance (X2)	1	Device	$ -	included	T
DT-DP-PH-Z	Appliance (Z)	1	Device	$ -	included	T
DT-DP-PH-ME	Appliance (Medium)	1	Device	$ -	included	T
				Year 3 Total	$ 366,630.00	
				Base Years Total	**$ 1,099,890.00**	

Option Year 1 (7/16/2029 - 7/15/2030)								
DT-PL-PD-NE-0008000	Darktrace/NETWORK	8000	Devices	$	-	$	366,630.00	
DT-PL-PD-EM-EX 0001100	Darktrace/EMAIL	1100	Users	$	-	included		
DT-PL-PD-ID-0001800	Darktrace/IDENTITY	1595	Users	$	-	included		
DT-DP-PH-X2	Appliance (X2)	1	Device	$	-	included		T
DT-DP-PH-Z	Appliance (Z)	1	Device	$	-	included		T
DT-DP-PH-ME	Appliance (Medium)	1	Device	$	-	included		T
					Option Year 1 Total	$	366,630.00	Please see note below**
Option Year 2 (7/16/2030 - 7/15/2031)								
DT-PL-PD-NE-0008000	Darktrace/NETWORK	8000	Devices	$	-	$	366,630.00	
DT-PL-PD-EM-EX 0001100	Darktrace/EMAIL	1100	Users	$	-	included		
DT-PL-PD-ID-0001800	Darktrace/IDENTITY	1595	Users	$	-	included		
DT-DP-PH-X2	Appliance (X2)	1	Device	$	-	included		T
DT-DP-PH-Z	Appliance (Z)	1	Device	$	-	included		T
DT-DP-PH-ME	Appliance (Medium)	1	Device	$	-	included		T
					Option Year 2 Total	$	366,630.00	Please see note below**
					Option Years Total	**$**	**733,260.00**	Please see note below**
					Grand Total (Basis of Award)	**$**	**1,833,150.00**	

BIDDER ACCEPTS RESPONSIBILITY FOR ACCURACY AND PRESENTATION OF THE ABOVE NUMBERS.

In the case of calculation errors, unit prices will prevail. ***Unit prices shall be rounded to the nearest cent.*** *The above quantities are for bidding purposes only and are based on MTS' current usage. They represent what MTS anticipates as a requirement, but MTS does not guarantee this quantity. The actual quantity ordered may be more or less than what is anticipated on the pricing form, and it is dictated by MTS actual requirements and the available funding at the time each order is initiated.*

**Nth Generation is aligned with Darktrace quoting process submitting pricing schedule as follows. Darktrace is extending offer to SDMTS once Agreement is in place thru Nth Generation. At any time prior to the termination date of Product Order Form (the "Opt In Deadline"), the Parties may elect to extend the subscriptions granted herein on a like for like basis for a maximum of two (2) additional twelve (12) month terms with pricing available to Customer at the rate of USD $366,630.00 per annum by providing prior written notice to fingroup@darktrace.com and executing a supplementary Product Order Form ("Opt In"). The right to Opt In shall lapse if Customer does not exercise such right to Opt In prior to the Opt In Deadline. Any new products, significantly enhanced features or capabilities for which Darktrace charges other customers may not be included in the Opt In and will be the subject of separate negotiation by the Parties. Additional Fees are quoted solely on the basis that the Customer's infrastructure, configuration, hosting requirements and environment ("Customer Environment") remain materially similar to those as at the Effective Date. Darktrace reserves the right to charge additional Fees if there are material changes to the Customer Environment.

1. SCOPE OF WORK/TECHNICAL SPECIFICATIONS

1.1. PURPOSE

The purpose of this Scope of Work is to define the renewal and continued use of the Darktrace Intrusion Prevention and Detection Systems (IPS/IDS) and Microsoft 365 SaaS DETECT and RESPOND to strengthen MTS Information Security and Intelligence (ISI) cybersecurity defenses. These solutions provide a layered, integrated approach to protecting MTS network and cloud-based environments against evolving cyber threats.

1.2. BACKGROUND

The San Diego Metropolitan Transit System (MTS), like other public-sector agencies, faces increasing cybersecurity risks due to the growing scale, complexity, and connectivity of its operational and information technology environments. The expansion of networked devices and cloud-based services exposes MTS to risks such as data theft, service disruption, vandalism, and potential real-world impacts on critical infrastructure.

To address these risks, MTS ISI requires advanced cybersecurity tools that deliver real-time visibility, threat detection, and response capabilities across both on-premises and cloud environments. MTS ISI implemented Darktrace as its primary IDS/IPS solution. Darktrace utilizes artificial intelligence (AI) to establish a baseline of normal network behavior and detect threats through behavioral anomaly analysis, including previously unknown attacks and insider threats.

In parallel, MTS relies heavily on Microsoft 365 services (including SharePoint, OneDrive, and Teams), where direct control over user behavior is limited. As a result, enhanced cloud-based detection and response capabilities are essential to protect against unauthorized access, data exfiltration, and account compromise.

1.3. SCOPE OF WORK

The Contractor shall provide subscription renewals for the following cybersecurity solutions in support of MTS ISI:

A. Darktrace Network Intrusion Prevention and Detection Systems (IPS/IDS)

Darktrace IPS/IDS shall provide enterprise-wide, AI-driven monitoring, detection, and response capabilities across the MTS network environment.

Core Capabilities Include:

- Continuous learning of normal network and system behavior to detect anomalous or malicious activity
- Identification of novel, zero-day, and insider threats not detectable by signature-based tools
- Unified protection across network infrastructure, connected devices, email, and IoT systems
- Autonomous, real-time mitigation of threats via pre-configured response controls
- Automated and assisted incident investigation workflows that significantly reduce analysis and response time

- Augmentation of ISI staff capacity through automation and prioritized threat intelligence

B. Microsoft 365 SaaS DETECT and RESPOND

Darktrace M365 SaaS DETECT and RESPOND shall provide advanced threat detection and response capabilities specific to MTS's Microsoft 365 environment.

Core Capabilities Include:

- Continuous AI-driven monitoring of Microsoft 365 services to identify suspicious user behavior and account activity
- Detection of advanced, novel, and zero-day threats that may bypass native security controls
- Immediate, proportionate response actions through Darktrace RESPOND to contain threats while maintaining business continuity
- AI-recommended remediation actions that support both automated and guided response workflows
- Seamless integration with existing MTS infrastructure and security operations processes

1.4. TECHNICAL SPECIFICATIONS

Contractor will provide MTS a contract for up to five (5) years with three (3) base years and two (2) 1-year options, exercisable at MTS sole discretion starting 7/16/2026. The total contract will be paid in annual installments. The subscriptions include:

- SKU: DT-PL-PD-NE-0008000 - Darktrace/NETWORK – 8,000 Devices
- SKU: DT-PL-PD-EM-EX-0001100 - Darktrace/EMAIL Exchange Online – 1100 Users
- SKU: DT-PL-PD-ID-0001800 - Darktrace/IDENTITY – 1595 Users
- SKU: DT-DP-PH-X2 - Darktrace Deployment Options/Appliance (X2) - QTY 1
- SKU: DT-DP-PH-Z - Darktrace Deployment Options/Appliance (Z) - QTY 1
- SKU: DT-DP-PH-ME - Darktrace Deployment Options/Appliance (Medium) - QTY 1

1.5. TARIFFS

All quoted pricing should be "EXCLUSIVE" of tariffs. In the event there are tariffs imposed across any items under this contract, the Contractor may request separate payment through the submission of CBP Form 7501 outlining the HTSUS rate (Box 33) and Duty charged (Box 34) for the description (Box 28) and quantity (Box 30 & 31) of the item which should match the MTS Purchase Order particulars.

Tariff charges may be invoiced under a separate charge to each purchase order once approved by MTS.

1.6. INVOICES

Invoices must be sent to the MTS Accounting Department, via email, at ap@sdmts.com. All invoices must have the Purchase Order and contract number clearly displayed to ensure timely payment. MTS will not pay on packing slips, receiving documents, delivery documents, or other similar documents. Invoices must be submitted for payment.

Payment terms shall be net 30 days from invoice date. If MTS rejects an incorrectly submitted invoice and sends it back for correction, the net 30 days restart from the corrected invoice date.

Contractors must also indicate if any of the invoiced amount(s) is for service or work provided by a subcontractor and indicate the amount that will be paid to the subcontractor. Contractors must also comply with the prompt payment requirements in the *Prompt Progress Payments* section of the Standard Conditions.

1.7. [NOT APPLICABLE] PAYMENT PROCESSING SECURITY AND PAYMENT CARD INDUSTRY (PCI) DATA SECURITY STANDARD (DSS) COMPLIANCE

1.8. [NOT APPLICABLE] HEWLETT PACKARD ENTERPRISE (HPE) MINIMUM REQUIREMENTS

1.9. [NOT APPLICABLE] CISCO MINIMUM REQUIREMENTS

1.10. [NOT APPLICABLE] CONTRACTOR'S INFORMATION SECURITY RESPONSIBILITIES

1.11. [NOT APPLICABLE] SAFETY DATA SHEETS (SDS)

1.12. [NOT APPLICABLE] NO RIGHT TO POST SIGNS

1.13. [NOT APPLICABLE] WARRANTY

1.14. [NOT APPLICABLE] REPLACEMENT PARTS

1.15. DELIVERY AND ACCEPTANCE

The current subscription expires July 15, 2026. The renewal must be recorded accurately under the MTS account by July 16, 2026.

After the support contract is renewed, MTS will confirm its completion by ensuring the updated user counts are reflected in the Darktrace Asset Counts.

1. The support contract renewal must be accurately recorded under MTS account.
2. Proof of the updated support agreement must be visible and verifiable in the Darktrace license count.

1.16. [NOT APPLICABLE] LIQUIDATED DAMAGES

Metropolitan Transit System

Agenda Item No. 12

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Fiscal Year (FY) 2026 Audit – Engagement Letter and Interim Audit Results

INFORMATIONAL ONLY

Budget Impact

None.

DISCUSSION:

On February 8, 2024 (Agenda Item (AI) 10), the San Diego Metropolitan Transit System (MTS) Board of Directors approved a contract with the Pun Group to provide external auditing services to MTS for a 5-year base period (through March 31, 2029) and three 1-year options (through March 2032).

Pursuant to that contract, the Pun Group will conduct the annual financial audit for FY 2026 period. Auditing standards require the auditor to present a written engagement letter and obtain a signature from an officer of the company. Attachment A is the engagement letter from The Pun Group for the FY 2026 audit, as well as their most recent peer review. Attachment B is the letter from The Pun Group to those charged with governance.

The financial audit is completed in two segments, interim audit and year end audit. The Pun Group conducted the interim audit from April 20, 2026 through May 1, 2026 to review MTS procedures and test internal controls. The steps taken and results are attached in Attachment C, Interim Exit Memo. The year end audit will commence in late August.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. FY26 Engagement Letter
B. 2026 Communication with those Charged with Governance
C. FY26 Interim Audit Memo

THE PUN GROUP
ACCOUNTANTS & ADVISORS

6 Hutton Centre Drive, Suite 1200
Santa Ana, California 92707

www.pungroup.cpa

April 15, 2026

Board of Directors
San Diego Metropolitan Transit System
1255 Imperial Avenue, Suite 1000
San Diego, CA 92101

RE: Engagement of The Pun Group, LLP (the "Firm") as MTS's Independent Auditors

We are pleased to confirm our understanding of the services we are to provide to the San Diego Metropolitan Transit System ("MTS") for the year ending June 30, 2026. The Firm's services are provided pursuant to MTS Contract No. G2788.0-24 ("Contract"). Nothing in this engagement letter is intended to modify or amend the terms and conditions set forth in the Contract. In the event a conflict arises between this letter and the Contract, the terms in the Contract shall prevail.

Audit Scope and Objectives

We will audit the financial statements of the business-type activities and the aggregate remaining fund information, including the disclosures, which collectively comprise the basic financial statements, of MTS as of and for the year ending June 30, 2026.

Accounting standards generally accepted in the United States of America ("GAAP") provide for certain required supplementary information ("RSI"), such as management's discussion and analysis ("MD&A"), to supplement MTS's basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to MTS's RSI in accordance with auditing standards generally accepted in the United States of America ("GAAS"). These limited procedures will consist of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We will not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient appropriate evidence to express an opinion or provide any assurance. The following RSI is required by GAAP and will be subjected to certain limited procedures, but will not be audited:

1) Management's Discussion and Analysis
2) GASB Statement No. 68 Required Schedules:
   a) Schedule of Proportionate Share of the Net Pension Liability
   b) Schedule of Changes in Net Pension Liability and Related Ratios
   c) Schedule of Contributions - Pension
3) GASB Statement No. 75 Required Schedules:
   a) Schedule of Changes in Total OPEB Liability and Related Ratios

We have also been engaged to report on supplementary information other than RSI that accompanies MTS's financial statements. We will subject the following supplementary information to the auditing procedures applied in our audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with GAAS, and we will provide an opinion on it in relation to the financial statements as a whole in a report combined with our auditor's report on the financial statements.

1) Combining Financial Statements
2) Schedules of Revenues, Expenses, and Changes in Net Position – Budget and Actual
3) Schedule of Expenditures of Federal Awards

In connection with our audit of the basic financial statements, we will read the following other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

1) Introductory Section
2) Statistical Section

The objectives of our audit are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and issue an auditor's report that includes our opinions about whether your financial statements are fairly presented, in all material respects, in conformity with GAAP, and report on the fairness of the supplementary information referred to in the second paragraph when considered in relation to the financial statements as a whole. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. Misstatements, including omissions, can arise from fraud or error and are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment of a reasonable user made based on the financial statements. The objectives also include reporting on:

- Internal control over financial reporting and compliance with provisions of laws, regulations, contracts, and award agreements, noncompliance with which could have a material effect on the financial statements in accordance with *Government Auditing Standards*.

- Internal control over compliance related to major programs and an opinion (or disclaimer of opinion) on compliance with federal statutes, regulations, and the terms and conditions of federal awards that could have a direct and material effect on each major program in accordance with the Single Audit Act Amendments of 1996 and Title 2 U.S. *Code of Federal Regulations* (CFR) Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance).

Auditor's Responsibilities for the Audit of the Financial Statements and Single Audit

We will conduct our audit in accordance with GAAS; the standards for financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; the Single Audit Act Amendments of 1996; and the provisions of the Uniform Guidance, and will include tests of accounting records, a determination of major program(s) in accordance with Uniform Guidance, and other procedures we consider necessary to enable us to express such opinions. As part of an audit in accordance with GAAS and *Government Auditing Standards*, we exercise professional judgment and maintain professional skepticism throughout the audit.

We will evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management. We will also evaluate the overall presentation of the financial statements, including the disclosures, and determine whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation. We will plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the government or to acts by management or employees acting on behalf of the government. Because the determination of waste and abuse is subjective, *Government Auditing Standards* do not expect auditors to perform specific procedures to detect waste or abuse in financial audits nor do they expect auditors to provide reasonable assurance of detecting waste or abuse.

Because of the inherent limitations of an audit, combined with the inherent limitations of internal control, and because we will not perform a detailed examination of all transactions, there is an unavoidable risk that some material misstatements or noncompliance may not be detected by us, even though the audit is properly planned and performed in accordance with GAAS and *Government Auditing Standards*. In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the financial statements or on major programs. However, we will inform the appropriate level of management of any material errors, any fraudulent financial reporting, or misappropriation of assets that come to our attention. We will also inform the appropriate level of management of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential. We will include such matters in the reports required for a Single Audit. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any later periods for which we are not engaged as auditors.

We will also conclude, based on the audit evidence obtained, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about MTS's ability to continue as a going concern for a reasonable period of time.

Our procedures will include tests of documentary evidence supporting the transactions recorded in the accounts, tests of the physical existence of inventories, and direct confirmation of receivables and certain assets and liabilities by correspondence with selected individuals, funding sources, creditors, and financial institutions. We will also request written representations from your attorneys as part of the engagement.

We have identified the following significant risk(s) of material misstatement as part of our audit planning:

- According to GAAS, significant risks include management override of controls, and GAAS presumes that revenue recognition is a significant risk. Accordingly, we have considered these as significant risks. As planning for the current period audit has not concluded, modifications may be made. If new significant risks are identified after the date of this letter, we will communicate them in writing to those charged with governance in a timely manner.

We may, from time to time and depending on the circumstances, use third-party service providers in serving your account. We may share confidential information about you with these service providers but remain committed to maintaining the confidentiality and security of your information. Accordingly, we maintain internal policies, procedures, and safeguards to protect the confidentiality of your personal information. In addition, we will secure confidentiality agreements with all service providers to maintain the confidentiality of your information and we will take reasonable precautions to determine that they have appropriate procedures in place to prevent the unauthorized release of your confidential information to others. In the event that we are unable to secure an appropriate confidentiality agreement, you will be asked to provide your consent prior to the sharing of your confidential information with the third-party service provider. Furthermore, we will remain responsible for the work provided by any such third-party service providers.

Our audit of financial statements does not relieve you of your responsibilities.

Audit Procedures—Internal Control

We will obtain an understanding of the government and its environment, including the system of internal control, sufficient to identify and assess the risks of material misstatement of the financial statements, whether due to error or fraud, and to design and perform audit procedures responsive to those risks and obtain evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentation, or the override of internal control. Tests of controls may be performed to test the effectiveness of certain controls that we consider relevant to preventing and detecting errors and fraud that are material to the financial statements and to preventing and detecting misstatements resulting from illegal acts and other noncompliance matters that have a direct and material effect on the financial statements. Our tests, if performed, will be less in scope than would be necessary to render an opinion on internal control and, accordingly, no opinion will be expressed in our report on internal control issued pursuant to *Government Auditing Standards*.

As required by the Uniform Guidance, we will perform tests of controls over compliance to evaluate the effectiveness of the design and operation of controls that we consider relevant to preventing or detecting material noncompliance with compliance requirements applicable to each major federal award program. However, our tests will be less in scope than would be necessary to render an opinion on those controls and, accordingly, no opinion will be expressed in our report on internal control issued pursuant to the Uniform Guidance.

An audit is not designed to provide assurance on internal control or to identify significant deficiencies or material weaknesses. Accordingly, we will express no such opinion. However, during the audit, we will communicate to management and those charged with governance internal control related matters that are required to be communicated under AICPA professional standards, *Government Auditing Standards*, and the Uniform Guidance.

Audit Procedures—Compliance

As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we will perform tests of MTS's compliance with provisions of applicable laws, regulations, contracts, and agreements, including grant agreements. However, the objective of those procedures will not be to provide an opinion on overall compliance, and we will not express such an opinion in our report on compliance issued pursuant to *Government Auditing Standards*.

The Uniform Guidance requires that we also plan and perform the audit to obtain reasonable assurance about whether the auditee has complied with federal statutes, regulations, and the terms and conditions of federal awards applicable to major programs. Our procedures will consist of tests of transactions and other applicable procedures described in the *OMB Compliance Supplement* for the types of compliance requirements that could have a direct and material effect on each of MTS's major programs. For federal programs that are included in the Compliance Supplement, our compliance and internal control procedures will relate to the compliance requirements that the Compliance Supplement identifies as being subject to audit. The purpose of these procedures will be to express an opinion on MTS's compliance with requirements applicable to each of its major programs in our report on compliance issued pursuant to the Uniform Guidance.

Responsibilities of Management for the Financial Statements and Single Audit

Our audit will be conducted on the basis that you acknowledge and understand your responsibility for (1) designing, implementing, establishing, and maintaining effective internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, including internal controls over federal awards, and for evaluating and monitoring ongoing activities to help ensure that appropriate goals and objectives are met; (2) following laws and regulations;

(3) ensuring that there is reasonable assurance that government programs are administered in compliance with compliance requirements; and (4) ensuring that management and financial information is reliable and properly reported. Management is also responsible for implementing systems designed to achieve compliance with applicable laws, regulations, contracts, and grant agreements. You are also responsible for the selection and application of accounting principles; for the preparation and fair presentation of the financial statements, schedule of expenditures of federal awards, and all accompanying information in conformity with accounting principles generally accepted in the United States of America; and for compliance with applicable laws and regulations (including federal statutes), rules, and the provisions of contracts and grant agreements (including award agreements). Your responsibilities also include identifying significant contractor relationships in which the contractor has responsibility for program compliance and for the accuracy and completeness of that information.

You are also responsible for making drafts of financial statements, schedule of expenditures of federal awards, all financial records, and related information available to us and for the accuracy and completeness of that information (including information from outside of the general and subsidiary ledgers); and for the evaluation of whether there are any conditions or events, considered in the aggregate, that raise substantial doubt about MTS's ability to continue as a going concern for the 12 months after the financial statement date or shortly thereafter (for example, within an additional three months if currently known).. You are also responsible for providing us with (1) access to all information of which you are aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, identification of all related parties and all related-party relationships and transactions, and other matters; (2) access to personnel, accounts, books, records, supporting documentation, and other information as needed to perform an audit under the Uniform Guidance; (3) additional information that we may request for the purpose of the audit; and (4) unrestricted access to persons within the government from whom we determine it necessary to obtain audit evidence. At the conclusion of our audit, we will require certain written representations from you about the financial statements; schedule of expenditures of federal awards; federal award programs; compliance with laws, regulations, contracts, and grant agreements; and related matters.

Your responsibilities include adjusting the financial statements to correct material misstatements and confirming to us in the management representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the latest period presented are immaterial, both individually and in the aggregate, to the financial statements of each opinion unit taken as a whole.

You are responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the government involving (1) management, (2) employees who have significant roles in internal control, and (3) others where the fraud could have a material effect on the financial statements. Your responsibilities include informing us of your knowledge of any allegations of fraud or suspected fraud affecting the government received in communications from employees, former employees, grantors, regulators, or others. In addition, you are responsible for identifying and ensuring that the government complies with applicable laws, regulations, contracts, agreements, and grants. You are also responsible for taking timely and appropriate steps to remedy fraud and noncompliance with provisions of laws, regulations, contracts, and grant agreements that we report. Additionally, as required by the Uniform Guidance, it is management's responsibility to evaluate and monitor noncompliance with federal statutes, regulations, and the terms and conditions of federal awards; take prompt action when instances of noncompliance are identified including noncompliance identified in audit findings; promptly follow up and take corrective action on reported audit findings; and prepare a summary schedule of prior audit findings and a separate corrective action plan.

You are responsible for identifying all federal awards received and understanding and complying with the compliance requirements and for the preparation of the schedule of expenditures of federal awards (including notes and noncash assistance received, and COVID-19-related concepts, such as lost revenues, if applicable) in conformity with the Uniform Guidance. You agree to include our report on the schedule of expenditures of federal awards in any document that contains, and indicates that we have reported on, the schedule of expenditures of federal awards.

You also agree to make the audited financial statements readily available to intended users of the schedule of expenditures of federal awards no later than the date of the schedule of expenditures of federal awards is issued with our report thereon. Your responsibilities include acknowledging to us in the written representation letter that (1) you are responsible for presentation of the schedule of expenditures of federal awards in accordance with the Uniform Guidance; (2) you believe the schedule of expenditures of federal awards, including its form and content, is stated fairly in accordance with the Uniform Guidance; (3) the methods of measurement or presentation have not changed from those used in the prior period (or, if they have changed, the reasons for such changes); and (4) you have disclosed to us any significant assumptions or interpretations underlying the measurement or presentation of the schedule of expenditures of federal awards.

You are also responsible for the preparation of the other Supplementary Information, which we have been engaged to report on, in conformity with U.S. generally accepted accounting principles (GAAP). You agree to include our report on the supplementary information in any document that contains and indicates that we have reported on the Supplementary Information. You also agree to include the audited financial statements with any presentation of the supplementary information that includes our report thereon. Your responsibilities include acknowledging to us in the written representation letter that (1) you are responsible for presentation of the Supplementary Information in accordance with GAAP; (2) you believe the Supplementary Information, including its form and content, is fairly presented in accordance with GAAP; (3) that the methods of measurement or presentation have not changed from those used in the prior period (or, if they have changed, the reasons for such changes); and (4) you have disclosed to us any significant assumptions or interpretations underlying the measurement or presentation of the Supplementary Information.

Management is responsible for establishing and maintaining a process for tracking the status of audit findings and recommendations. Management is also responsible for identifying and providing report copies of previous financial audits, attestation engagements, performance audits, or other studies related to the objectives discussed in the Audit Scope and Objectives section of this letter. This responsibility includes relaying to us corrective actions taken to address significant findings and recommendations resulting from those audits, attestation engagements, performance audits, or studies. You are also responsible for providing management's views on our current findings, conclusions, and recommendations, as well as your planned corrective actions for the report, and for the timing and format for providing that information.

Assistance by Your Personnel

We will ask that your personnel, to the extent possible, prepare required schedules and analyses, and make selected invoices and other required documents available to our staff. This assistance by your personnel will serve to facilitate the progress of our work and minimize our time requirements.

Data Collection Form

At the conclusion of the engagement, we will complete the appropriate sections of the Data Collection Form that summarizes our audit findings. It is management's responsibility to electronically submit the reporting package (including financial statements, schedule of expenditures of federal awards, summary schedule of prior audit findings, auditor's reports, and corrective action plan) along with the Data Collection Form to the Federal Audit Clearinghouse. We will coordinate with you the electronic submission and certification. The Data Collection Form and the reporting package must be submitted within the earlier of 30 calendar days after receipt of the auditor's reports or nine months after the end of the audit period.

Independence

Professional standards require that a firm and its members maintain independence throughout the duration of the professional relationship with a client. In order to preserve the integrity of our relationship, no offer of employment shall be discussed with any of Firm's professionals assigned to the audit, during the one-year period prior to the commencement of the year end audit. Should such an offer of employment be made, or employment commences during the indicated time period, we will consider this an indication that our independence has been compromised. As such, we may be required to recall our auditor's report due to our lack of independence. In the event additional work is required to satisfy independence requirements, such work will be billed at our standard hourly rates.

Report Distribution and Other

We will provide copies of our reports to MTS; however, management is responsible for distribution of the reports and the financial statements. Unless restricted by law or regulation, or containing privileged and confidential information, copies of our reports are to be made available for public inspection.

Access to Working Papers

The audit documentation for this engagement is the property of The Pun Group, LLP, and constitutes confidential information. However, subject to applicable laws and regulations, audit documentation and appropriate individuals will be made available upon request and in a timely manner to the Oversight Agency for Audit or its designee, a federal agency providing direct or indirect funding, or the U.S. Government Accountability Office for purposes of a quality review of the audit, to resolve audit findings, or to carry out oversight responsibilities. We will notify you of any such request. If requested, access to such audit documentation will be provided under the supervision of The Pun Group, LLP personnel. Furthermore, upon request, we may provide copies of selected audit documentation to the aforementioned parties. These parties may intend, or decide, to distribute the copies or information contained therein to others, including other governmental agencies.

The audit documentation for this engagement will be retained for a minimum of seven (7) years after the report release date or for any additional period requested by the Oversight Agency for Audit . If we are aware that a federal awarding agency, pass-through entity, or auditee is contesting an audit finding, we will contact the party(ies) contesting the audit finding for guidance prior to destroying the audit documentation.

The Firm is required to undergo a "peer review" every three years. During the course of a Peer Review engagement, selected working papers and financial reports, on a sample basis, will be inspected by an outside party on a confidential basis. Consequently, the accounting and/or auditing work we performed for you may be selected. Signing this letter represents your acknowledgement and permission to allow such access should your engagement be selected for review.

Timing

Coley Delaney, CPA is the engagement partner and is responsible for supervising the engagement and signing the reports or authorizing another individual to sign them. We expect to begin our audit on approximately April 20, 2026 and to issue our reports no later than November 12, 2026.

Fees

Our fees for these services are subject to the terms of MTS Contract No. G2788.0-24 for the year ending June 30, 2026. Our fees are based on certain assumptions, including the required assistance described above. To the extent that certain circumstances included but not limited to those listed in Appendix A, arise during the engagement, our fee estimate may be significantly affected and additional fees may be necessary. Additional services provided beyond the described scope of services will be billed separately.

Our invoices for these fees will be rendered as work progresses and are payable on presentation. In accordance with our firm policies, work may be suspended if your account becomes 60 days or more overdue and may not be resumed until your account is paid in full. If we elect to terminate our services for nonpayment, our engagement will be deemed to have been completed upon written notification of termination, even if we have not completed our report(s). You will be obligated to compensate us for all time expended and to reimburse us for all out-of-pocket costs through the date of termination.

The above fee is based on anticipated cooperation from your personnel and the assumption that unexpected circumstances will not be encountered during the audit. If significant additional time is necessary, we will discuss it with you and arrive at a new fee estimate before we incur the additional costs.

Reporting

We will issue written reports upon completion of our Single Audit. Our reports will be addressed to the MTS Board of Directors. Circumstances may arise in which our report may differ from its expected form and content based on the results of our audit. Depending on the nature of these circumstances, it may be necessary for us to modify our opinions, add a separate section, or add an emphasis-of-matter or other-matter paragraph to our auditor's report, or if necessary, withdraw from this engagement. If our opinions are other than unmodified, we will discuss the reasons with you in advance. If, for any reason, we are unable to complete the audit or are unable to form or have not formed opinions, we may decline to express opinions or issue reports, or we may withdraw from this engagement.

The *Government Auditing Standards* report on internal control over financial reporting and on compliance and other matters will state that (1) the purpose of the report is solely to describe the scope of testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance, and (2) the report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering MTS's internal control and compliance. The Uniform Guidance report on internal control over compliance will state that the purpose of the report on internal control over compliance is solely to describe the scope of testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Both reports will state that the report is not suitable for any other purpose.

Termination

We acknowledge MTS's right to terminate our services at any time, and MTS acknowledges our right to resign at any time (including instances where in our judgment, our independence has been impaired or we can no longer rely on the integrity of management), subject in either case to our right to payment for all direct and indirect charges incurred through the date of termination or resignation or thereafter as circumstances and this agreement may require, plus applicable interest, costs, fees and attorneys' fees.

Independence

Professional standards require that a firm and its members maintain independence throughout the duration of the professional relationship with a client. In order to preserve the integrity of our relationship, no offer of employment shall be discussed with any The Pun Group, LLP professionals assigned to the audit, during the one-year period prior to the commencement of the year end audit. Should such an offer of employment be made, or employment commences during the indicated time period, we will consider this an indication that our independence has been compromised.

As such, we may be required to recall our auditor's report due to our lack of independence. In the event additional work is required to satisfy independence requirements, such work will be billed at our standard hourly rates. Furthermore, we strive to staff your engagement with quality, superbly trained professionals. In recognition of the extensive investment we have made to recruit and develop our personnel, we ask that you agree to the following. In the event that any of our employees accepts a position of employment with MTS, or any of its related parties at any time while we are performing services for you or within one year thereafter, you agree to pay us a placement fee equal to the employee's annual compensation in effect on the date such employment was contracted. Such fee is payable when the employee accepts such a position.

Most Recent External Quality Control Review

Government Auditing Standards require that we provide you with a copy of our most recent external peer review report and any letter of comment, and any subsequent peer review reports and letters of comment received during the period of the contract. A copy of our most recent external peer review report (2024) received by The Pun Group, LLP is included with this Engagement Letter.

****

Agreement

It is hereby understood and agreed that this engagement is being undertaken solely for the benefit of MTS and that no other person or entity shall be authorized to enforce the terms of this engagement.

If you agree with the terms of our engagement, as described in this letter, please sign below, and return it to us.

We appreciate the opportunity to be of service to MTS and believe this letter accurately summarizes the significant terms of our engagement. If you have any questions, please let us know. If you agree with the terms of our engagement as described in this letter, please sign the enclosed copy, and return it to us.

Very truly yours,

The Pun Group LLP

Coley Delaney, CPA
Engagement Partner

RESPONSE:

This letter correctly sets forth the understanding of the San Diego Metropolitan Transit System.

By: _____

Title: CFO

Date: 4/15/26

APPENDIX A

San Diego Metropolitan Transit System
Circumstances Affecting Timing and Fee Estimate

Circumstances may arise during the engagement that may significantly affect the targeted completion dates and our fee estimate. As a result, additional fees may be necessary. Such circumstances include but are not limited to the following:

1. Changes to the timing of the engagement at your request. Changes to the timing of the engagement usually require reassignment of personnel used by The Pun Group, LLP (the "Firm") in the performance of services hereunder. However, because it is often difficult to reassign individuals to other engagements, the Firm may incur significant unanticipated costs.

2. All requested schedules are not (a) provided by the accounting personnel on the date requested, (b) completed in a format acceptable to the Firm (c) mathematically correct, or (d) in agreement with the appropriate underlying records (e.g., general ledger accounts). The Firm will provide the accounting personnel with a separate listing of required schedules and deadlines.

3. Weaknesses in the internal control structure.

4. Significant new issues or unforeseen circumstances as follows:

    a. New accounting issues that require an unusual amount of time to resolve.

    b. Changes or transactions that occur prior to the issuance of our report.

    c. Changes in the entity's accounting personnel, their responsibilities, or their availability.

    d. Changes in auditing requirements set by regulators.

5. Significant delays in the accounting personnel's assistance in the engagement or delays by them in reconciling variances as requested by the Firm. All invoices, contracts and other documents which we will identify for the entity, are not located by the accounting personnel or made ready for our easy access.

6. A significant level of proposed audit adjustments is identified during our audit.

7. Changes in audit scope caused by events that are beyond our control.

8. Untimely payment of our invoices as they are rendered.

Report on the Firm's System of Quality Control

To the Partners of
THE PUN GROUP, LLP
and the Peer Review Committee of the California Society of CPAs

We have reviewed the system of quality control for the accounting and auditing practice of The Pun Group, LLP (the firm) in effect for the year ended December 31, 2023. Our peer review was conducted in accordance with the Standards for Performing and Reporting on Peer Reviews established by the Peer Review Board of the American Institute of Certified Public Accountants (Standards).

A summary of the nature, objectives, scope, limitations of, and the procedures performed in a system review as described in the Standards may be found at www.aicpa.org/prsummary. The summary also includes an explanation of how engagements identified as not performed or reported on in conformity with applicable professional standards, if any, are evaluated by a peer reviewer to determine a peer review rating.

Firm's Responsibility

The firm is responsible for designing and complying with a system of quality control to provide the firm with reasonable assurance of performing and reporting in conformity with the requirements of applicable professional standards in all material respects. The firm is also responsible for evaluating actions to promptly remediate engagements deemed as not performed or reported on in conformity with the requirements of applicable professional standards, when appropriate, and for remediating weaknesses in its system of quality control, if any.

Peer Reviewer's Responsibility

Our responsibility is to express an opinion on the design of and compliance with the firm's system of quality control based on our review.

Required Selections and Considerations

Engagements selected for review included engagements performed under *Government Auditing Standards,* including compliance audits under the Single Audit Act and audits of employee benefit plans.

As part of our peer review, we considered reviews by regulatory entities as communicated by the firm, if applicable, in determining the nature and extent of our procedures.

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CPAmerica
Member Crowe Global

In our opinion, the system of quality control for the accounting and auditing practice of The Pun Group, LLP in effect for the year ended December 31, 2023, has been suitably designed and complied with to provide the firm with reasonable assurance of performing and reporting in conformity with applicable professional standards in all material respects. Firms can receive a rating of *pass, pass with deficiency(ies)* or *fail*. The Pun Group, LLP has received a peer review rating of *pass*.

GYL LLP

Ontario, California
December 30, 2024

THE PUN GROUP
ACCOUNTANTS & ADVISORS

4660 La Jolla Village Drive, Suite 100
San Diego, California 92122

www.pungroup.cpa

April 15, 2026

To the Board of Directors
of the San Diego Metropolitan Transit System
San Diego, California

We are engaged to audit the financial statements of the San Diego Metropolitan Transit System ("MTS") for the year ending June 30, 2026. Professional standards require that we provide you with the following information related to our audit. We would also appreciate the opportunity to meet with you to discuss this information further since a two-way dialogue can provide valuable information for the audit process.

Our Responsibilities under U.S. Generally Accepted Auditing Standards, *Government Auditing Standards*, and Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (the "Uniform Guidance")

As stated in our engagement letter dated April 15, 2026, our responsibility, as described by professional standards, is to express opinions about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audit of the financial statements does not relieve you or management of your responsibilities.

In planning and performing our audit, we will consider MTS's internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing our opinions on the financial statements and not to provide assurance on the internal control over financial reporting. We will also consider internal control over compliance with requirements that could have a direct and material effect on a major federal program in order to determine our auditing procedures for the purpose of expressing our opinion on compliance and to test and report on internal control over compliance in accordance with the Uniform Guidance.

As part of obtaining reasonable assurance about whether MTS's financial statements are free of material misstatements, we will perform tests of its compliance with certain provisions of laws, regulations, contracts, and grants. However, providing an opinion on compliance with those provisions is not an objective of our audit. Also, in accordance with the Uniform Guidance, we will examine, on a test basis, evidence about MTS's compliance with the types of compliance requirements described in the U.S. Office of Management and Budget (OMB) Compliance Supplement applicable to each of its major federal programs for the purpose of expressing an opinion on MTS's compliance with those requirements. While our audit will provide a reasonable basis for our opinion, it will not provide a legal determination on MTS's compliance with those requirements.

Generally accepted accounting principles provide for certain required supplementary information (RSI) to supplement the basic financial statements. Our responsibility with respect to the Management's Discussion and Analysis, the Schedule of Proportionate Share of the Net Pension Liability, Schedule of the Changes in Net Pension Liability and Related Ratios, the Schedule of Contributions - Pensions, and the Schedule of the Changes in Net OPEB Liability and Related Ratios which supplements the basic financial statements, is to apply certain limited procedures in accordance with generally accepted auditing standards. However, the RSI will not be audited and, because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance, we will not express an opinion or provide any assurance on the RSI.

We have been engaged to report on the Schedule of Expenditures of Federal Awards, Combining Schedule of Net Position, Combining Schedule of Revenues, Expenses, and Changes in Net Position, Combining Schedule of Cash Flows, and the Schedules of Revenues, Expenses and Changes in Net Position – Budget and Actual, which accompany the financial statements but are not RSI. Our responsibility for this supplementary information, as described by professional standards, is to evaluate the presentation of the supplementary information in relation to the financial statements as a whole and to report on whether the supplementary information is fairly stated, in all material respects, in relation to the financial statements as a whole.

We have not been engaged to report on the Introductory Section and the Statistical Section, which accompany the financial statements but are not RSI. Our responsibility with respect to this other information in documents containing the audited financial statements and auditor's report does not extend beyond the financial information identified in the report. We have no responsibility for determining whether this other information is properly stated. This other information will not be audited and we will not express an opinion or provide any assurance on it.

Planned Scope, Timing of the Audit, and Other

An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements; therefore, our audit will involve judgment about the number of transactions to be examined and the areas to be tested.

Our audit will include obtaining an understanding of the entity and its environment, including the system of internal control, sufficient to assess the risks of material misstatement of the financial statements and to design the nature, timing, and extent of further audit procedures. Material misstatements may result from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the entity or to acts by management or employees acting on behalf of the entity. Because the determination of waste and abuse is subjective, Government Auditing Standards do not expect auditors to perform specific procedures to detect waste or abuse in financial audits nor do they expect auditors to provide reasonable assurance of detecting waste or abuse. We will generally communicate our significant findings at the conclusion of the audit. However, some matters could be communicated sooner, particularly if significant difficulties are encountered during the audit where assistance is needed to overcome the difficulties or if the difficulties may lead to a modified opinion. We will also communicate any internal control related matters that are required to be communicated under professional standards.

We have identified the following significant risk(s) of material misstatement as part of our auditing planning:

- According to GAAS, significant risks include management override of controls, and GAAS presumes that revenue recognition is a significant risk. Accordingly, we have considered these as significant risks.

We expect to begin our audit on approximately April 20, 2026 and issue our report by November 12, 2026. Coley Delaney is the engagement partner and is responsible for supervising the engagement and signing the report or authorizing another individual to sign it.

This information is intended solely for the use of the Board of Directors and management of MTS and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,

The Pun Group, LLP

San Diego, California

THE PUN GROUP
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San Diego Metropolitan Transit System
Fiscal Year Ending June 30, 2026
Interim Exit Memo 2026

INTERIM AUDIT PROCEDURES:

The purpose of our interim audit was to update our understanding of how MTS's internal control systems are designed and implemented in order to prevent and detect material misstatements, and to determine if opportunities for strengthening internal controls existed. To accomplish these objectives, we interviewed management and staff regarding policies and procedures, obtained supporting documentation, performed walkthroughs of significant transaction cycles, identified key controls, and, in certain instances, designed tests to evaluate the operating effectiveness of key internal controls over the following significant transaction cycles:

1) Financial Reporting
   a) Reporting to the board – update and walkthrough
   b) Journal entry process – update and walkthrough
   c) Bank reconciliation – update, testing of controls, and walkthrough
   d) Month end closing – update and walkthrough
   e) Year-end closing – update and walkthrough

2) Revenues and Receipts
   a) Farebox – update and walkthrough
   b) Ticket Vending Machines – update and walkthrough
   c) Transit Store – update and walkthrough
   d) Invoicing – update and walkthrough
   e) Bank deposits – update and walkthrough
   f) PRONTO – update and walkthrough
   g) Grant/Intergovernmental - update and walkthrough

3) Purchasing, Expenses, and Cash Disbursements
   a) Purchasing – update and walkthrough
   b) Accounts payable and cash disbursements – update, testing of controls, and walkthrough

4) Payroll and Related Liabilities
   a) Payroll process – update and walkthrough
   b) Rate/status change – update and walkthrough

5) Inventory
   a) Daily cycle count – update and walkthrough
   b) Ordering – update and walkthrough
   c) Receiving – update and walkthrough
   d) Dispensing – update and walkthrough
   e) SDTI inventory count scheduled Friday June 26, 2026

6) Capital Assets
   a) Additions/deletions – update and walkthrough
   b) CIP – update and walkthrough

In addition to updating our understanding of MTS's design and implementation of internal control systems, we also performed the following activities:

- Perform fraud risk inquiries
- Update understanding of general IT controls and IT environment
- Reviewed fiscal year 2026 budget
- Reviewed the board, executive committee/audit oversight committee minutes
- Performed pension census data testing for MTS and SDTI (SDTC 7/1/25 census data tested in PY – 7/1/26 census data to be tested once census data files are available)
- Reviewed OPEB census data testing (New valuation in 2026)
- Performed preliminary TDA compliance expenditure testing

CURRENT YEAR INTERIM RESULTS:

Based on the interim procedures performed, internal controls for the selected transaction cycles appeared to be both properly designed and effectively operating in order to prevent and detect material misstatements. No exceptions requiring formal written responses (significant deficiencies or material weaknesses) were noted. In addition, no control deficiencies (lesser deficiencies that can be communicated directly to management) were identified.

IMPLEMENTATION OF NEW GASB PRONOUNCEMENTS

GASB Statement No. 103 – *Financial Reporting Model Improvements*

This statement enhances key components of the financial reporting model to improve the effectiveness of information provided to users. Key changes include updates to Management's Discussion and Analysis (MD&A), presentation of unusual or infrequent items, and revisions to budgetary comparison information. Budgetary comparison requirements will not be applicable to MTS as this requirement applies to Required Supplementary Information only and MTS presents its budget to actual data in the Supplementary Information section of the ACFR.

Implementation will impact the format and content of MTS's MD&A, as well as the presentation of certain financial statement elements and required supplementary information.

GASB Statement No. 104 – Disclosure of Certain Capital Assets

This statement requires additional disclosures for certain types of capital assets, including those that are intangible or held for sale. The objective is to provide users with more transparent and decision-useful information regarding capital asset activity and classifications.

Implementation may result in expanded note disclosures for MTS, particularly related to capital assets held for sale or other applicable classifications.

GASB Statement No. 105 – Subsequent Events (Early Implement in 2026 if necessary)

This statement provides guidance on the disclosure of events that occur after the financial statement date but before the issuance of the financial statements. It clarifies the types of subsequent events that should be disclosed and establishes consistent reporting requirements.

Implementation may require MTS to enhance its evaluation and disclosure of subsequent events, including documentation of the period through which subsequent events have been evaluated and any events requiring disclosure.

Upcoming Pun Group Client Training Sessions:

Client training topics have been finalized for 2026 Summer Sessions and will include:

- GASB Update
- GASB 103 Implementation
- IT General Controls
- Fraud in Government and NFP Entities
- Common Mistakes in Financial Reporting
- Single Audit and OMB Compliance Supplement Update

Dates to be provided. Most sessions will be approximately one hour.

INTERIM AUDIT OPEN ITEMS

1) **Financial Reporting -** Year-end closing walkthrough– *TPG to complete at year end.*

2) **Journal Entry testing** – additional samples will be completed at year end. *TPG to select samples from YE closing entries in SAP.*

3) **Capital assets - Year End Walkthrough** – *TPG to complete at year end.*
   i) Maintain Project Master data
   ii) Project Accounting & Settlement
   iii) Project Closing
   iv) Asset disposition

4) **Administrative**
   a) Sign and return attorney letters (will pick up at inventory count)
   b) Board member fraud inquiries (will inquire after 6/30)

UPCOMING DATES

SDTI inventory count	Friday, June 26
Year End	three weeks beginning August 24, 2026

Metropolitan Transit System

Agenda Item No. 13

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Master Concessionaire Services – Contract Amendment

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute Amendment No. 2 to MTS Doc. G2653.0-23 (in substantially the same format as Attachment A) with BriceHouse Station, LLC (BriceHouse) related to temporary activations and special event management at the Gaslamp Quarter Trolley Station, Gaslamp Square, and Convention Center Station.

Budget Impact

This amendment is anticipated to generate additional non-fare revenue to MTS through special event activations conducted during San Diego Comic-Con International. Under the proposed amendment, BriceHouse would receive ten percent (10%) of gross activation fees associated with Comic-Con-related activations and fifty percent (50%) of gross fees for other approved special events conducted at the Gaslamp Quarter Trolley Station.

DISCUSSION:

On June 15, 2023 (Agenda Item 18), the MTS Board approved MTS Doc. G2653.0-23 with BriceHouse for Master Concessionaire services for six (6) base years and six (6) 1-year options. The base year term expires on July 31, 2029. The Master Concessionaire agreement provides oversight, concession management, advertising services, and revenue-generating opportunities at MTS trolley stations, transit centers, and related properties.

As part of the Master Concessionaire program, BriceHouse assists MTS in identifying and managing non-fare revenue opportunities through concessionaire services, advertising assets, and special event activations. MTS-owned properties adjacent to the San Diego Convention Center and Gaslamp Quarter present unique opportunities during various conventions, but especially during San Diego Comic-Con International, one of the region's largest annual events.

Comic-Con-related activations frequently involve temporary branded experiences, promotional installations, and event-related activities that require substantial coordination among event organizers, MTS personnel, public agencies, and adjacent stakeholders. These activities also require compliance with operational, safety, permitting, and right-of-way requirements, including City of San Diego Special Use Permit requirements applicable to Gaslamp Square Park.

The proposed Amendment No. 2 would authorize BriceHouse to market and manage designated activation areas located at the Gaslamp Quarter Trolley Station and Convention Center Station properties during Comic-Con-related events under the Master Concessionaire program. These services were inadvertently left off the original Master Concessionaire scope of work and bid form even though they have historically been part of that program. Today's amendment would resolve this conflict and ensure this continued stream of non-fare revenue to MTS.

Under the proposed amendment:

- BriceHouse would have the non-exclusive right to market and manage temporary activations and special event uses at designated locations associated with San Diego Comic-Con International. BriceHouse would receive ten percent (10%) of the gross activation fees paid to MTS for Comic-Con-related activations conducted on the applicable properties. Under a separate agreement with Comic-Con (MTS Doc. No. G2847.0-24), MTS is required to (a) issue event permits only to Comic-Con approved sponsors or exhibitors and (b) pay Comic-Con 25% of MTS's gross revenue for Comic-Con related activations at Gaslamp Square.

- For non-Comic-Con-related special events conducted at the Gaslamp Quarter Trolley Station, BriceHouse would receive fifty percent (50%) of the gross fees paid to MTS for such events.

- All activations and events would continue to require coordination with the MTS Manager of Real Estate Assets and issuance of applicable MTS Right of Entry permits prior to occupancy or use.

- MTS would retain sole authority to approve or deny any activation or special event; establish rental rates and operational requirements; impose special conditions; and revoke or suspend approvals for operational, safety, or regulatory reasons.

- All events and activations would be required to comply with applicable City permits, MTS Right of Entry Permit requirements, operational requirements, safety regulations, and applicable laws.

The proposed amendment would support MTS's ongoing efforts to expand non-fare revenue opportunities while maintaining operational oversight and protecting transit operations during major regional events. Staff believes the proposed amendment provides a fair and reasonable framework for managing special event activations at these high-profile transit locations while leveraging BriceHouse's expertise in concessionaire and event management services. The percentage shares are consistent with past practice and recognize the level of revenue and the level of effort required by Bricehouse to solicit and manage each event on MTS's behalf.

Therefore, staff recommends that the Board of Directors authorize the CEO to execute Amendment No. 2 to MTS Doc. G2653.0-23 (in substantially the same format as Attachment A) with BriceHouse related to Comic-Con activation and special event management services at the Gaslamp Quarter Trolley Station, Gaslamp Square, and Convention Center Station.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, julia.tuer@sdmts.com

Attachment: A. Draft Amendment G2653.2-23

AMENDMENT NO. 2

TO MASTER CONCESSIONAIRE AGREEMENT

This Amendment No. 2 ("Amendment") to MTS Document No. G2653.0-23 is entered into as of this 18th day of June 2026 ("Effective Date"), by and between the San Diego Metropolitan Transit System ("MTS") and BriceHouse Station, LLC ("BriceHouse").

RECITALS

A. On August 2, 2023, MTS entered into a Master Concessionaire Agreement ("Agreement") with BriceHouse to provide professional concessionaire and advertising services at MTS trolley stations, transit stations, and Gaslamp Square.

B. On January 15, 2026, the Agreement was amended to include the San Ysidro Retail Kiosk Upgrade Project (MTS Doc. No. G2653.1-23).

C. San Diego Comic Convention (Comic-Con) presents MTS with a unique opportunity to generate significant non-fare revenue through temporary activations and special events conducted on MTS-owned and controlled properties adjacent to the San Diego Convention Center.

D. Activations conducted during Comic-Con require substantial coordination among event organizers, MTS personnel, and public agencies to ensure compliance with applicable permit requirements, safety regulations, trolley operations, right-of-way restrictions, and City of San Diego requirements.

E. MTS and BriceHouse desire to amend the Agreement to authorize BriceHouse to market and manage designated activation areas at the Gaslamp Quarter Trolley Station and Convention Center Station during Comic-Con under the Master Concessionaire program.

F. The revenue-sharing provisions applicable to Comic-Con activations under this Amendment shall supersede any conflicting provisions contained in the Master Concessionaire Services Standard Agreement, Exhibit A, MTS Document No. G2653.0-23.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

1. <u>Comic-Con Marketing and Management Rights</u>

BriceHouse shall have the non-exclusive right to market and manage temporary activations and special event uses at the Gaslamp Quarter Trolley Station, Gaslamp Square, and Convention Center Station properties for purposes associated with Comic-Con's annual event each July. Unless expressly authorized in writing by MTS, any

activation during Comic-Con shall be with a Comic-Con approved sponsor as required by MTS's separate agreement with Comic-Con (MTS Doc. No. G2847.0-24)

Such activities shall be conducted in accordance with all applicable permits, including the City of San Diego Special Use Permit for Gaslamp Square Park (MTS Document No. G2648.0-23), as amended or extended from time to time.

a. Revenue Share

BriceHouse shall receive ten percent (10%) of the gross activation fees paid to MTS for Comic-Con-related activations conducted on the applicable properties.

b. Event Coordination

All Comic-Con-related activations and special events shall be coordinated through the MTS Manager of Real Estate Assets and shall require issuance of an MTS Right of Entry Permit prior to occupancy or use. MTS Right of Entry Permit information can be found at the following website:

https://www.sdmts.com/business-center/permits/right-entry

c. MTS Authority

MTS reserves the sole and absolute right to approve or deny any proposed activation or event; establish rental rates, fees, and operational requirements; impose special conditions applicable to any event; and revoke or suspend event approvals for operational, safety, or regulatory reasons.

d. Compliance Requirements

All events and activations conducted pursuant to this Amendment shall comply with all applicable City permits, MTS Right of Entry Permit requirements, applicable laws and regulations, and MTS operational and safety requirements.

2. Other Special Events at Gaslamp Station and Gaslamp Square

For special events conducted at the Gaslamp Quarter Trolley Station or Gaslamp Square outside of Comic-Con activities, BriceHouse shall receive fifty percent (50%) of the gross fees paid to MTS for such events.

Notwithstanding the foregoing, MTS reserves the right to sponsor, conduct, or authorize events at any/all of its stations without payment of commission or revenue share to BriceHouse.

BriceHouse may charge event users reasonable cost-recovery fees for cleaning, restoration, or related services necessary to return the property to its pre-event condition, subject to MTS approval.

3. Entire Amendment

Except as expressly modified by this Amendment, all terms and conditions of the original Agreement and prior amendments shall remain in full force and effect.

IN WITNESS WHEREOF

The parties have caused this Amendment to be executed by their duly authorized representatives as of the Effective Date set forth above.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

By: _____

Chief Executive Officer

Date: _____

BRICEHOUSE STATION, LLC

By: _____

Name: _____

Title: _____

Date: _____

Metropolitan Transit System

Agenda Item No. 14

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Proposed Revisions to Ordinance No. 2 Relating to Proof of Fare Payment by Passengers, Ordinance No. 5 Relating to the Enforcement Authorities of Designated MTS Employees, and Ordinance No. 13 Relating to Prohibited Conduct and Actions on Transit Vehicles, Transit Facilities, Trolley Stations and Bus Stops

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors:

1) Adopt the proposed amendments to Ordinance No. 2 (An Ordinance Requiring Proof of Fare Payment by Passengers Using the San Diego Trolley) (Attachment A); Ordinance No. 5 (An Ordinance Relating to the Enforcement Authorities of Designated MTS Employees) (Attachment B); and Ordinance No. 13 (An Ordinance Regarding Prohibited Conduct Onboard Transit Vehicles and Prohibited Actions on or About a Transit Facility, Trolley Station or Bus Stop) (Attachment C); and

2) Waive the requirements of MTS Board Policy No. 22 “Rules of Procedure for MTS Board of Directors” Sections 22.4.3, stating all ordinances shall be read in full either at the time of introduction or passage (per MTS Board Policy No. 22, unanimous vote of the Board members present is required in order to waive further reading).

Public Security Committee Recommendation

At its April 10, 2026 meeting (Agenda Item (AI) 5), the Public Security Committee unanimously approved a motion to forward a recommendation to the MTS Board of Directors to adopt the proposed amendments to Ordinance No. 2, Ordinance No. 5 and Ordinance No. 13, with all 7 members voting in favor (Committee Members: Public Security Committee Chair Monica Montgomery Steppe, Patricia Dillard, Ronn Hall, Steve Goble, Henry Foster, Jose Rodriquez and Cesar Fernandez) and 0 opposed.

Budget Impact

None with this action.

DISCUSSION:

Public Utilities Code Section 120105 vests the MTS Board of Directors with the duty to adopt ordinances and make rules and regulations necessary to regulate the use and operation of its property, facilities and vehicles, and services. As such, the Board has over time adopted various MTS Ordinances.[1]

Examples include:

- MTS Ordinance No. 2 (Proof of Fare Payment),
- MTS Ordinance No. 4 (Regulations at MTS Parking Lots)
- MTS Ordinance No. 11 (For-Hire Vehicle Administration Regulations)
- MTS Ordinance No. 13 (Prohibited Conduct at MTS Facilities and Vehicles)

Through Ordinance No. 5 (Enforcement Authorities of Designated MTS Employees), the Board has authorized certain employees[2] to enforce the above ordinances, in addition to other local and state code sections and regulations applicable to prohibited conduct at MTS's facilities and vehicles.

Staff conducted a review of the above ordinances and concluded that changes are warranted for Ordinance No. 2 (Proof of Fare Payment), Ordinance No. 5 (Enforcement Authorities of Designated MTS Employees), and Ordinance No. 13 (Prohibited Conduct on MTS Facilities and Vehicles).

The recommended changes are discussed below.

Assaults Against MTS Employees and Passengers

Currently, when a battery occurs (e.g. punching of a person by another person), MTS requests local law enforcement assistance. In situations when local law enforcement cannot timely arrive to assist, designated MTS Security staff may arrest and issue a citation for battery to ensure these crimes can still progress into a criminal case.

Currently, MTS Security is authorized to enforce violations of Penal Code Section 242 "Battery", which is the willful and lawful force on another person.

Proposed changes: MTS has identified additional code sections that more specifically involve an assault or battery against a transportation worker, passenger, or person on a public transit vehicle or property, which involve increased penalties. MTS has also identified a code section that involves attempts or threats to cause injury to, or a battery against, public officers.

MTS takes assault and battery against MTS passengers, employees, contractors, and the public on MTS vehicles and property seriously. Allowing designated MTS Security to arrest and cite for these violations would provide an additional tool to deter harmful behavior and enhance safety

[1] A full list of MTS Ordinances can be found here: https://www.sdmts.com/business-center/reports-records-and-policies/ordinances.

[2] Per MTS Ordinance 5, designated MTS Security employees that are authorized to detain, arrest and/or issue citations include the following: Code Compliance Inspectors, Code Compliance Supervisors, Code Compliance Investigators, Assistant Field Operations Managers, and Field Operations Managers.

across MTS's system. Therefore, it is recommended that designated MTS Security staff be authorized to enforce violations of:

- Penal Code Section 71 (Threatening school or public officers or employees)
- Penal Code Section 241.3 (Assault against transportation worker or passenger)
- Penal Code Section 243.3 (Battery against transportation worker or passenger)
- Penal Code Section 243.35 (Battery on public transportation)

These proposed revisions are reflected in Ordinance No. 5 (Attachment B).

Trespassing

Currently, designated MTS Security may arrest and issue a cite to any person who refuses or fails to leave MTS property that is not open to the general public (Penal Code Section 602(o)) or an MTS building outside of business hours (Penal Code Section 602(q)).

Proposed changes: There are instances in which Security staff may request individuals to also leave an MTS trolley or bus, trolley station, bus facility, or other property that is open to the general public. This may be used to deescalate incidents where the individual is failing to comply with lawful requests of Security to stop certain prohibited conduct. MTS has identified additional code sections that more specifically involve individuals that refuse or fail to leave MTS property, facilities or vehicles when their conduct is interfering with the safe and efficient operations of MTS and when entry is prohibited based on posted signage. Therefore, it is recommended that designated MTS Security staff be authorized to enforce violations of:

- Penal Code 369i (Unauthorized entry or presence upon railroad property or transit-related property)
- Penal Code 555 (Entry upon posted property; separate offense)

These proposed revisions are reflected in Ordinance No. 5 (Attachment B).

In addition, stay away orders prohibiting a person from entering MTS property are sometimes issued by the court as part of an individual defendant's sentencing after being convicted of a crime(s) committed against MTS. However, designated MTS Security staff are not currently authorized by Ordinance No. 5 to issue citations if a person violates a court-issued stay away order. MTS's current option is to request local law enforcement assistance in the event an individual with a stay away order is found on MTS property. Because local law enforcement often cannot timely arrive at an MTS location to assist with these incidents, it is recommended that designated MTS Security staff be authorized to enforce violations of:

- Penal Code 166 (a)(4), and (c)(1) (Contempt of court; Stalking; Punishments)

This proposed revision is reflected in Ordinance No. 5 (Attachment B).

Finally, there have been occurrences of passengers attempting and/or entering the locked, non-public, enclosed area of the trolley cabin, where the trolley operator operates the vehicle. Security staff found there was no applicable code or ordinance section that specifically prohibits this activity, which poses significant safety concerns.

Therefore, it is recommended that a prohibition from entering into the enclosed trolley operator cabin be added to Ordinance No. 13 (Attachment C).

Weapons

There have been instances when passengers have been found with weapons on the MTS System. MTS staff has identified Penal Code Section 171.7 which prohibits firearms, grenades, undetectable knives and other types of weapons on public transit facilities. Therefore, it is recommended that designated MTS Security staff be authorized to enforce violations of:

- Penal Code Section 171.7 (Possession of firearms, grenades, tear gas, replicas, and other weapons in a public transit facility)

This proposed revision is reflected in Ordinance No. 5 (Attachment B).

Cargo Policy

To comply with Title 13 of California Code of Regulations section 1216, MTS is required to prohibit cargo or baggage in vehicles that could cause safety concerns and to keep aisles, doors, steps, and emergency exits clear to ensure unobstructed egress and ingress in the event of an emergency. Bus operators and MTS Security staff are trained to educate passengers on MTS's cargo policy, and MTS's Cargo Policy is included on MTS's website (https://www.sdmts.com/rider-info/how-ride/rules-riding).

Proposed changes: Notwithstanding MTS's current policies and rules, there are instances in which passengers still bring large cargo onto vehicles and place it in a way that blocks aisles and doorways, and/or that leaks and causes safety concerns. There is uncertainty regarding when and how MTS can enforce these rules and issue a citation if a person refuses to follow such rules. Therefore, it is recommended that a prohibition from bringing cargo that blocks aisles and doorways of a transit vehicle, or that leaks or causes soiling, be added. This proposed revision is reflected in Ordinance No. 13 (Attachment C). Enforcement through measures such as a citation would be used only if educational efforts are unsuccessful and a person refuses to remove the offending cargo.

Contactless Fare Payments: Present Payment Method Upon Request

Recently, MTS implemented a "contactless payment" fare option.[3] Contactless payment allows passengers to pay their fare with the direct tap of a debit or credit card or other contactless payment option such as a smartphone or smartwatch. Fare inspections take place the same way they happen with a PRONTO card or app. Code Compliance Inspectors use a handheld device to tap the passenger's credit card or enabled smartphone. The inspection process does not create a charge (or "double charge") on the credit card – it simply verifies that the payment method was "tapped" on the PRONTO validator. The payment method is charged at the PRONTO validator/tapping stage, not the inspection stage.

Proposed changes: MTS Ordinances have not been revised to reflect this new payment method or describe how MTS Security staff can verify fare using contactless payments. Therefore, it is recommended that a contactless payment section be added to Ordinance No. 2, expressly

[3] See https://www.ridepronto.com/contactless-payments. This is sometimes also referred to as "open payment."

requiring that the contactless payment method be presented to MTS Security staff upon request to verify valid fare. This proposed revision is reflected in Ordinance No. 2 (Attachment A).

Removing Obsolete, Inapplicable, or Unused Code Sections from Ordinance No. 5

As part of MTS staff's comprehensive review, code sections within MTS Ordinance No. 5 were identified that MTS Security staff does not enforce. This may be because the code section is not directly relevant to MTS transit operations and/or safety or security at MTS facilities or on vehicles, or it could be because MTS does not have the specialized skill, training, or tools required to properly cite a person for violating the specific code section. Therefore, it is recommended the following be removed from Ordinance No. 5, Section 5.3(A) (Attachment B):

- Health and Safety Code Section 11357(b) (possession of certain amount of cannabis)
- Penal Code Section 308(b) (selling or furnishing tobacco or smoking paraphernalia to person under 21)
- Penal Code Section 470(a) (forgery of checks or other legal documents)
- Vehicle Code Section 5204 (expired vehicle registration tags)

Please note, it is still recommended that MTS For-Hire Vehicle Administration retain the authority to enforce violations of Vehicle Code Section 5204 (expired vehicle registration tags) as it relates to for-hire vehicles (e.g. taxicabs, non-emergency medical vehicles). Therefore, no changes are recommended for Section 5.3(B) of Ordinance No. 5.

Other Minor Revisions

Other non-substantive revisions were made throughout these Ordinances to reflect updated terminology. For example, the term "Compass Card" was changed to "PRONTO" in Ordinance No. 2 (Attachment A) and Ordinance No. 13 (Attachment C). Compass Card is the name of MTS's previous electronic fare payment system that was in place before the conversion to PRONTO took place in late 2021. Revisions were made to Ordinance No. 2 to reflect that payment of fare is required not only on trolley service, but also on bus service (Attachment A).

In addition, Ordinance No. 13 is currently organized by listing out the prohibited conduct on transit vehicles in one section and prohibited actions on transit facilities in a separate section. Since many of these prohibited actions are applicable to both transit vehicles and transit facilities, staff recommend Ordinance No. 13 be organized in a way that all prohibited conduct is listed within one section. These organizational revisions are reflected in Attachment C.

Lastly, clarifying language was made to MTS's service animal provisions in accordance with Department of Transportation (DOT) Americans with Disabilities Act (ADA) regulations, which are reflected in Ordinance No.13 (Attachment C).

Therefore, staff recommends that the MTS Board of Directors:

1) Adopt the proposed amendments to Ordinance No. 2 (An Ordinance Requiring Proof of Fare Payment by Passengers Using the San Diego Trolley) (Attachment A); Ordinance No. 5 (An Ordinance Relating to the Enforcement Authorities of Designated MTS Employees) (Attachment B); and Ordinance No. 13 (An Ordinance Regarding Prohibited Conduct Onboard Transit Vehicles and Prohibited Actions on or About a Transit Facility, Trolley Station or Bus Stop) (Attachment C); and

2) Waive the requirements of MTS Board Policy No. 22 “Rules of Procedure for MTS Board of Directors” Sections 22.4.3, stating all ordinances shall be read in full either at the time of introduction or passage (per MTS Board Policy No. 22, unanimous vote of the Board members present is required in order to waive further reading).

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. MTS Ordinance No. 2 (track changes in red-line)
B. MTS Ordinance No. 5 (track changes in red-line)
C. MTS Ordinance No. 13 (track changes in red-line)

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

ORDINANCE NO. 2
(as adopted 6/8/81, and as amended ~~through1/19/12~~through 6/182026)

An Ordinance Requiring Proof of Fare Payment by Passengers ~~Using the San Diego Trolley~~

The Board of Directors of the San Diego Metropolitan Transit System (MTS) do ordain as follows:

SECTION 1

Section 2.1: Findings

In 1979 by Resolution No. 79-2, MTS adopted a self-service, barrier-free fare collection system for use with respect to the Light Rail Transit System, after finding that such a fare collection system would maximize overall productivity. Those findings are hereby reaffirmed for the ~~San Diego~~MTS Trolley ~~System~~service. In order to make the self-service, barrier-free fare collection system as productive and efficient as possible, it is necessary to adopt this Ordinance pursuant to Sections 120105 and 120450 of the Public Utilities Code requiring proof of fare payment by passengers using the ~~San Diego Trolley~~MTS Trolley service. Similarly, fare enforcement efforts are required on fixed route bus services. The Board finds consistent fare enforcement rules are important for fairness and effective customer education and engagement.
~~system.~~

~~(Section 2.1 amended 6/18/2026)~~

Section 2.2: Definitions

The following terms as used in this Ordinance shall have the following meaning:

A. Inspector - An officer(s) or employee(s) of MTS or authorized by Ordinance by MTS or a peace officer(s) designated by MTS, to check passengers for valid proof of fare payment with the authority to arrest and issue a Citation of Fare Evasion to passengers not possessing or exhibiting valid proof of fare payment and to otherwise enforce the provisions of this Ordinance.

B. Proof of Fare Payment - Proof of fare payment means any of the following:

1. A Monthly ~~or 30-Day~~ Pass (Adult, Youth, or Senior/Disabled/Medicare), Day Pass or other time-delimited pass valid for use on the MTS Bus and Trolley, purchased by or for the passenger, and valid for the time of use. A monthly pass includes a monthly pass that has been achieved through fare capping.

2. A single-ride pass (e.g., one-way ticket), purchased by or for the passenger ~~from a~~, valid for use on the MTS Bus or Trolley, that has been validated using a Trolley fare vending/validating machine~~.~~ or an onboard Bus Validator. This single-ride ~~ticket~~pass is valid provided the passenger in possession is qualified for the fare category ~~printed~~ on the ~~ticket~~pass, the passenger is on a trolley or bus traveling in a direction away from the boarding station ~~printed on the ticket, the passenger is on a trolley within the distance from the boarding station for~~or bus stop in which the ~~fare specified on the ticket is valid~~pass was validated, and the passenger is using the ~~ticket~~pass within two (2) hours of the date and time ~~printed~~ on the ~~ticket~~pass. The single-ride ~~ticket must be valid for the entire length of time that the passenger in possession is onboard the Trolley.~~
pass

~~3. A multi-ride ticket valid for use on the Trolley that has been validated using a Trolley fare vending/validating machine. This ticket is valid provided the passenger possessing the ticket is on a~~

~~trolley traveling in a direction away from the boarding station most recently printed on the ticket, the passenger possessing the ticket is on a trolley within the distance from the station of validation of which the cash fare specified on the ticket is valid, and the passenger possessing the ticket is using the ticket within two hours of the date and time most recently printed on the ticket. The~~

~~multi-ride ticket~~ must be valid for the entire length of time that the passenger in possession is onboard the Bus or Trolley.

3. A multi-ride pass valid for use on the MTS Bus or Trolley (e.g., day pass or special event pass) that has been validated using a Trolley fare vending/validating machine or an onboard Bus Validator. This pass is valid provided the passenger possessing the pass is on a trolley or bus traveling in a direction away from the boarding station or bus stop in which the pass was most recently validated , and the passenger possessing the pass is using the pass within two (2) hours of the date and time most recently validated. The multi-ride pass must be valid for the entire length of time that the passenger in possession is onboard the Bus or Trolley. A multi-ride pass includes a day pass that has been achieved through fare capping.

4. A debit or credit card, smartphone, or wearable (e.g. watch) equipped with contactless payment, that has been validated at a Trolley fare vending/validating machine or an onboard Bus Validator. Contactless payment is valid provided the passenger possessing the contactless payment is using it within two (2) hours of validation.

C. Citation for Nonpayment of a Fare - Means the written notice to appear issued by an Inspector to a passenger arrested for violating this Ordinance whereby the passenger is released on his promise to appear in court at the date, time, and place specified in the written notice.

D. Passenger - any person occupying, riding or using any trolley vehicle, boarding or deboarding such a vehicle or waiting within a designated paid fare zone ~~waiting area~~ at a Trolley station.

E. Designated Paid Fare Zone – Means any enclosed or unenclosed portion of a Trolley Station that begins at the Trolley boarding curb and extends approximately 15 feet deep to the back of the station boarding area. The outside edge of the Designated Paid Fare Zone is marked with painted lines, change in concrete or paver pattern, and/or signs. The Designated Paid Fare Zone extends the width of the Trolley boarding area, including any designated pedestrian crossing points at each end of the Trolley Station.

(Section 2.2 amended 6/18/2026)
(Section 2.2 adopted & amended1/19/12)

Section 2.3: Proof of Payment

No unauthorized person shall board, occupy, ride in, use or deboard any trolley or bus vehicle or stand within a designated paid fare zone ~~waiting area~~ at a Trolley station without possessing and exhibiting, upon demand of an Inspector, valid proof of fare payment.

(Section 2.3 amended 6/18/2026)
(Section 2.3 amended January 14, 1993)

Section 2.4: Agreement

The use of any bus or trolley vehicle shall constitute an agreement by the user to pay the applicable fare in accordance with the effective fare Ordinance established by MTS and to have in ~~his/her~~their immediate possession proof of fare payment.

(Section 2.4 amended 6/18/2026)

Section 2.5: Proof of Fare Payment Procedures

A. Upon demand of an Inspector, every passenger occupying, riding or using any bus or trolley vehicle, boarding or deboarding such a vehicle or waiting within a designated paid fare zone ~~waiting area~~ at a Trolley station shall exhibit proof of fare payment to the Inspector as required by this Ordinance.

B. If a passenger does not possess or exhibit valid proof of fare payment, the Inspector shall arrest such passenger and, if the passenger does not demand to be taken before a magistrate, the Inspector shall deliver to that passenger a Citation for Nonpayment of a Fare. The Citation for Nonpayment of a Fare shall contain the name and address of the passenger, the date the citation was issued, a description of the violation, the date, time, and place when and where such passenger shall appear in court, the name of the Inspector, and the signature of the passenger to whom this citation is delivered, which signature shall indicate the passenger's promise to appear in court at the date, time, and place specified in the citation. ~~The Citation for Nonpayment of a Fare shall also state a warning that the passenger's willful failure to appear in court as promised is a separate violation for which the passenger may be arrested and punished pursuant to the California Penal Code.~~

C. The failure or refusal of any passenger to exhibit proof of fare payment, provide positive identification as to ~~his/her~~their full name and ~~residence~~address, or sign the citation for Nonpayment of a Fare shall subject the passenger to all other provisions and remedies provided by law.

D. Failure of or refusal by the passenger to sign the Citation for Nonpayment of a Fare shall not affect the enforceability of this Ordinance.

(Section 2.5 amended 6/18/2026)
(Section 2.5 amended January 14, 1993)

Section 2.6: Penalties

Any violation of Section 2.3 of this Ordinance shall be an infraction punishable by a fine not exceeding seventy-five dollars ($75), except that such a violation by a person, after the second conviction under the Ordinance, shall be a misdemeanor punishable by a fine not exceeding five hundred dollars ($500) or by imprisonment not exceeding six months, or by both such fine and imprisonment. For purposes of this section, a bail forfeiture shall be deemed to be a conviction of the offense charged.

(Section 2.6 adopted & amended 1/19/12)

~~SECTION 2: Public Notice~~

~~Before the expiration of fifteen (15) days after its passage, this Ordinance shall be published once with the names of the members voting for and against the same in a newspaper of general circulation published in the County of San Diego.~~

~~SECTION 3: Operative Date~~

~~This Ordinance shall be operative on October 1, 2000.~~

~~JAN19-12.32.AttB.ORD 2.PROOF OF FARE.MTHOMSEN.doc~~

Amended: 6/18/2026
Adopted & Amended: 1/19/~~12~~2012
Amended: 7/13/~~00~~2000
Amended: 9/26/96
Amended: 1/14/93
Repealed & Readopted: 2/27/84
Adopted: 6/8/81

Clerk Affidavit

PASSED AND ADOPTED, by the Board of Directors this 18th day of June 2026. The Ordinance amended was adopted by the following vote:

AYES:

NAYS:

ABSENT:

ABSTAINING:

Chairperson
San Diego Metropolitan Transit System

ATTEST my hand and the seal of the San Diego Metropolitan Transit System this 18th day of June 2026.

Approved as to form:

Clerk of the Board
San Diego Metropolitan Transit System

General Counsel
San Diego Metropolitan Transit System

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

CODIFIED ORDINANCE NO. 5
(as amended ~~06/20/2024~~6/18/2026)

An Ordinance Relating to the Enforcement Authorities of Designated MTS Employees

The Board of Directors of the San Diego Metropolitan Transit System (MTS) do ordain as follows:

Section 5.1 Statutory Authorities

A. MTS has been created by State law (Public Utilities Code Section 120000 through 120702) as a public agency with the authority and duty to plan and construct exclusive public mass transit guideways (Section 120260) and to acquire, construct, maintain, and operate or let a contract to operate public transit systems and related transportation facilities and services (Section 120264).

B. Additionally, the Board is vested with the duty to adopt all ordinances and make all rules and regulations proper and necessary to regulate the use, operation, and maintenance of its property and facilities, including its public transit systems and related transportation facilities and services (Section 120105).

~~F~~C. In implementation of those provisions of State law, the Board has adopted MTS Ordinance No. 13, prohibiting specified conduct onboard transit vehicles and prohibiting specified actions on or about the transit facilities. The Board has further adopted MTS Ordinance No. 2, requiring proof of fare payment by passengers using the San Diego Trolley and MTS Ordinance No. 3, regulating parking in MTS parking lots and other transit facilities.

~~G~~D. The Board is authorized to contract with any city in the County of San Diego to license or regulate by ordinance any for-hire vehicle services rendered wholly within the city's corporate limits or within the unincorporated area (Section 120266) and has done so by adoption of MTS Ordinance No. 11, the enforcement of which will be done by For-Hire Vehicle Administration Regulatory Inspectors and Regulatory Supervisors.

~~H~~E. Pursuant to Penal Code Section 836.5, the Board may authorize public officers and employees to arrest a person without warrant, including officers and employees of a nonprofit transit corporation wholly owned by a local agency and formed to carry out the purposes of the local agency and San Diego Trolley, Inc., is such a corporation.

(Section 5.1 amended 6/18/2026)
(Section 5.1 amended 6/20/2024)
(Section 5.1 amended 11/15/2012)
(Section 5.1 amended 7/12/2001)
(Section 5.1 amended 9/26/1996)
(Section 5.1 amended 1/11/1996)
(Section 5.1 amended 11/10/1994)
(Section 5.1 amended 8/12/1993)

Section 5.2 Purposes

In view of the multitude of regulations applicable to the facilities and vehicles of MTS, it is desirable to clarify and specify the authority of designated MTS employees, relative to various acts committed on or about the property and vehicles.

(Section 5.2 amended 6/20/2024)

Section 5.3 Duties and Authorizations

A. Code Compliance Inspectors, Code Compliance Supervisors, Code Compliance Investigators, Assistant Field Operations Managers, and Field Operations Managers employed by MTS are hereby vested with the duty to enforce MTS Ordinances No. 2, No. 3, No. 11, and No. 13 and the following code sections:

1. Business and Professions Code Section 25662;
2. Health and Safety Code Sections 11364 ~~and 11357(b),~~ and 11532;
3. Public Utilities Code Sections 5411.5, 120450, 120450.5, 120451, and 120452;
4. Penal Code Sections 71, 148, 166 (a)(4) and (c)(1), 171.7, 219.2, 241.3, 242, ~~308(b),~~243.3, 243.35, , 314, 369g, 369i, 417.25(a), ~~470(a),~~ 481.1, 555, 555.1, 555.2, 587, 594, 594.1, 594.2, 594.4, 602(f), 602(o), 602(q), 640, 640.5, 647(a), 647(c), and 647(j);
5. Vehicle Code Sections ~~5204,~~ 21461, 21955, 22500, 22507, 22521, and 22526;
6. San Diego City Municipal Code Sections 56.54 (at transit facilities owned, controlled, or used by the Board, including but not limited to transit centers, rail stations, bus shelters, and bus stops on public and private property), 58.05(b)(1), and 58.05(b)(2~~;~~); and
7. San Diego County Code of Regulatory Ordinances Section 32.703.

In accordance with Penal Code Section 836.5, Code Compliance Inspectors, Code Compliance Supervisors, Code Compliance Investigators, Assistant Field Operations Managers, and Field Operations Managers employed by MTS are authorized to arrest a person without a warrant whenever they have reasonable cause to believe that the person to be arrested has committed an infraction or misdemeanor in their presence which is a violation of the statutes and ordinances which they have the duty to enforce.

B. For-Hire Vehicle Administration Regulatory Inspectors and Regulatory Supervisors employed by MTS are hereby vested with the duty to enforce MTS Ordinances No.3, No. 11, and No. 13 and the following code sections:

1. Government Code Section 53075.5 (i)(1);
2. Penal Code Section 654.1;
3. Public Utilities Code Sections 5360.5, 5371, 5379, 5381.5, 5386.5, and 5411;
4. California Public Utilities Commission General Order 157-E Sections 3.01 and 3.03; and
5. Vehicle Code Sections 4000(a)(1), 260(a), 16502(a), 5204, 21100.4, 22507.8, 23123 and 23123.5.

In accordance with Penal Code Section 836.5, For-Hire Vehicle Administration Regulatory Inspectors and Regulatory Supervisors employed by MTS are authorized to arrest a person without a warrant whenever they have reasonable cause to believe that the person to be arrested has committed an infraction or misdemeanor in their presence which is a violation of the statutes and ordinances which they have the duty to enforce.

C. Right-of-Way Agents, designated by the Chief Executive Officer and employed by MTS are hereby vested with the duty to enforce MTS Ordinance No. 3 and, in accordance with Penal Code Section 836.5, are authorized to arrest a person without a warrant whenever an agent has reasonable cause to believe that the person to be arrested has committed an infraction or misdemeanor in the Agent's presence which is a violation of the statutes and ordinances which they have the duty to enforce.

(Section 5.3 amended 6/18/2026)
(Section 5.3 amended 6/20/2024)
(Section 5.3 amended 5/12/2016)
(Section 5.3 amended 9/17/2015)
(Section 5.3 amended 11/15/2012)
(Section 5.3 amended 10/28/2004)
(Section 5.3 amended 10/3/2002)
(Section 5.3 amended 7/12/2001)
(Section 5.3 amended 3/23/2000)
(Section 5.3 amended 9/26/1996)
(Section 5.3 amended 1/11/1996)
(Section 5.3 amended 11/10/1994)
(Section 5.3 amended 8/12/1993)

Section 5.4 Severability

The provisions of this Ordinance are severable, and if any of the provisions, clauses, sentences, subsections, sections, words, or parts thereof is held illegal, invalid, or unconstitutional or inapplicable to any person or circumstance, such illegality, invalidity, unconstitutionality or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, subsections, sections, words or parts of this Ordinance or their application to other persons or circumstances. It is hereby declared to be the legislative intent that this Ordinance would have been adopted if such illegal, invalid, or unconstitutional provision, clause, sentence, subsection, section, word, or part had not been included therein or such person or circumstance to which the Ordinance or part thereof is held inapplicable has been specifically exempted therefrom.

Adopted: 7/25/1983
Amended: 2/27/1984
Amended: 10/4/1984
Amended: 10/13/1988
Amended: 2/8/1990
Repealed & Readopted: 12/12/1991
Amended: 8/12/1993
Amended: 11/10/1994
Amended: 1/11/1996
Amended: 9/26/1996
Amended: 3/23/2000
Amended: 8/9/2001
Amended: 10/3/2002
Amended: 10/28/2004
Amended: 6/28/2007
Amended: 11/15/2012
Amended: 9/17/2015
Amended: 5/12/2016
Amended: 6/20/2024
Amended: 6/18/2026

Clerk Affidavit

PASSED AND ADOPTED, by the Board of Directors this 18th day of June 2026. The Ordinance amended was adopted by the following vote:

AYES:

NAYS:

ABSENT:

ABSTAINING:

Chairperson
San Diego Metropolitan Transit System

ATTEST my hand and the seal of the San Diego Metropolitan Transit System this 18th day of June 2026.

Approved as to form:

Clerk of the Board
San Diego Metropolitan Transit System

General Counsel
San Diego Metropolitan Transit System

Ordinance No. 5

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

CODIFIED ORDINANCE NO. 13
(as Adopted 8/9/2001 and amended through ~~01/14/2016~~6/18/2026)

An Ordinance Regarding Prohibited Conduct Onboard Transit Vehicles ~~and Prohibited Actions on or About a,~~ Transit Facility, Trolley Station, or Bus Stop

The Board of Directors of the San Diego Metropolitan Transit System (MTS) does ordain as follows:

Section 13.1: General

The use of the ~~San Diego Metropolitan~~MTS Facilities, Bus Stop, Trolley Station and Transit Vehicles (MTS System ~~(MTS) facilities~~) shall be conditioned upon the observance of this ordinance or any rules and regulations hereafter promulgated by MTS or pursuant to its authority; all rights, privileges, licenses and permits, express or implied, for the use of MTS ~~facilities~~System are revocable; and each such right, privilege, license or permit shall at the option of MTS or its duly authorized representative be revoked and canceled by and upon the breach of this ordinance or of the violation while in or upon MTS ~~facilities~~System or any applicable laws or ordinances.

Nothing herein contained or omitted from this ordinance shall be construed to relieve any person whatsoever from exercising all reasonable care to avoid or prevent injury or damage to persons or property.

Any requirement or provision of these rules relating to any prohibited act shall respectively extend to and include the causing, procuring, aiding or abetting, directly or indirectly, of such act; or the permitting or the allowing of any minor in the custody of any person, doing any act prohibited by a provision hereof.

Any act otherwise prohibited by these rules shall be lawful if performed under, by virtue of, and strictly in compliance with the provisions of an agreement, permit, or license issued or approved by MTS and/or San Diego Trolley, Inc. (SDTI), and/or San Diego Transit Corporation (SDTC), and to the extent authorized thereby.

These rules are in addition to and supplement all applicable laws or ordinances.

Section 13.2: Definitions

The following terms, as used in this ordinance shall, unless otherwise expressly stated or unless the context clearly requires a different interpretation, have the following meaning.

A. Bicycle - A "bicycle" is a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having two wheels.

B. Bus - A "bus" is any motor vehicle, other than a motor truck or truck tractor, designed for carrying more than 10 persons including the driver, and used or maintained for the transportation of passengers, except that any motor vehicle, other than a motor truck or truck tractor, designed for carrying not more than 12 persons, including the driver, which is maintained and used in the nonprofit transportation of adults to and from a work location as part of a carpool program or when transporting only members of the household of the owner thereof, shall not be considered to be a bus for the purposes of this section.

C. Bus Stop – A “bus stop” is a designated area marked by a sign depicting a specific route number or numbers for the loading and unloading of passengers from or onto a bus, which may or may not include a bench or shelter.

~~D. Elderly – The "elderly" is any person that is age 65 or older.~~

~~E~~D. Facility or Transit Facility – A "facility" or "transit facility" includes, but is not limited to, transit centers, trolley stations, bus shelters, bus stops on public or private property, parking lots and or lands or properties that are utilized, owned, operated or controlled by MTS, its contractors or its subsidiaries.

~~F~~E. Individuals with Disabilities – "Individuals with Disabilities" is an individual with a physical or mental impairment that substantially limits one or more of the major life activities of that individual and any individual who identifies to MTS personnel that the individual has a disability. This definition shall only be applicable for purposes of this Priority Seating and Wheelchair/Securement Area Policy and is intended to follow the ADA DOT Definition of Individuals with Disabilities.

~~G~~F Pedestrian – A "pedestrian" is any person who is afoot or who is using a means of conveyance propelled by human power other than a bicycle.

~~H~~G. Priority Seating (Fixed Route Bus) – "Priority Seating" for Fixed Route Buses means the second row of forward-facing seats that are designated seating for individuals with disabilities and the elderly and is marked as such by signage. Priority Seating is different than the Wheelchair / Securement Area.

~~I~~H. Priority Seating (Trolley) – "Priority Seating" for Trolleys means the seats immediately adjacent to trolley doors that are designated seating for individuals with disabilities and the elderly and is marked as such by signage.

~~J~~I. Securement Area (Fixed Route Bus) – "Securement Area" for Fixed Route Buses means the front fold-down seats that are the designated area for securing a wheelchair and is marked as such by signage.

~~K~~J. Senior - A "senior" is any person that is age 65 or older.

K. System – A Bus, Bus Stop, Trolley, Transit Vehicle, Trolley Station, Facility or Transit Facility.

L. Tailgate – Any person standing, sitting, or remaining in the area of a vehicle, chair, table, ice-chest, barbeque, or similar device for the purpose of consuming any food or beverage, or for the purpose of socializing before during or at the conclusion of an event.

~~L~~M. Trolley – A "trolley" is a vehicle which is propelled by electric power obtained from overhead trolley wires and is operated upon rails.

~~M~~N. Trolley Station – A "trolley station" is a designated area marked by a sign depicting a specific rail service line; i.e., Orange, Blue, Red, Green, etc., for the loading and unloading of passengers from or onto a trolley, which may or may not include a bench or shelter.

~~N~~O. Transit Vehicle – A "transit vehicle" shall mean buses and trolleys or any other form of public conveyance utilized, owned, operated or controlled by MTS, their contractors or its subsidiaries.

~~O~~P. Validator – A "Validator" is a device or machine used for tapping ~~a Compass~~or scanning a PRONTO Card or Contactless Payments prior to a passenger boarding a bus or trolley.

~~P~~Q. Wheelchair Area (Trolley) – "Wheelchair Area" for Trolleys means the designated fold-down seats and floor space immediately adjacent to a trolley door equipped with a lift or ramp and is marked as such by signage.

~~Q~~R. Wheelchair – A "wheelchair" is a mobility aid belonging to any class of three- or more-wheeled devices, usable indoors, designed or modified for and used by individuals with mobility impairments, whether operated manually or powered. This definition of wheelchair does not include devices not intended for indoor uses (e.g. golf carts or all-terrain vehicles), devices not primarily designed to assist individuals with mobility impairments (e.g. tricycles, shopping carts or skateboards) or devices that that are used in ways that depart from or exceed their intended use (e.g. sitting in a walker that has built-in seats to ride in the wheelchair / securement area). This definition also does not include a wheelchair and occupant if the combined weight exceeds that of the lift and ramp specifications or if carriage of the wheelchair is demonstrated to be inconsistent with legitimate safety concerns. This definition is intended to follow the ADA DOT Definition of Wheelchairs.

Section 13.3: Fares

Passengers shall be permitted on a transit vehicle ~~or in a transit~~, transit station or designated paid fare zone of a trolley station utilized, owned, operated or controlled by MTS or its subsidiaries or contractors only upon payment of such fares and under such circumstances as may from time to time be ordained by MTS. It is unlawful for any person to refuse to pay, or to evade or attempt to evade the payment of such fares.

It is unlawful for any person to resell, or attempt to resell, any ticket, pass, ~~token~~, or other form of fare media that has already been used by another passenger, or to solicit, collect, or attempt to collect any ticket, pass, ~~token~~, or other form of fare media from a passenger, trash can, or other location with the intent to resell the ticket, pass, ~~token~~, or other form of fare media. MTS reserves the right to confiscate any previously used or resold ticket, pass, ~~token~~, or other form of fare media.

It is unlawful to purchase any used or unused ticket from any person or entity or purchase any fare media from any person or entity other than an authorized MTS ticket, pass, ~~token~~, or other fare media sales agent or ticket vending machine.

If passengers are utilizing a ~~Compass~~PRONTO Card or Contactless Payments (as defined in MTS Ordinance No. 4), they must present their card to a fare Validator when entering a bus, prior to waiting in any designated fare paid zone, and prior to boarding a trolley. This procedure is known as "Tap or Tapping." Tapping is a condition precedent to utilizing MTS bus and trolley service ~~and the Compass Card.~~. It shall be unlawful for passengers to refuse to Tap, or to evade Tapping, or to attempt to evade Tapping when utilizing a ~~Compass~~PRONTO Card ~~.~~ or Contactless Payments. MTS reserves the right to confiscate the ~~Compass~~PRONTO Card for noncompliance with this provision or the provisions of MTS Ordinance No. 4.

Section 13.4: Prohibited Conduct ~~Onboard Transit Vehicles~~

It shall be unlawful for ~~passengers or occupants while aboard a bus or trolley while the vehicle is transporting passengers in regular route service, contract, special, or community-type service within~~individuals on the MTS ~~jurisdictional area~~System to:

A. ~~A.~~ Consume any food or beverage, except that passengers may consume nonalcoholic beverages ~~while onboard a transit vehicle~~ if the beverages are contained in a spill-proof or screw-top container or bottle. Examples of such spill-proof or screw-top containers or bottles include, but are not limited to, water bottles and soda bottles with screw tops, personal beverage containers with snap-on or screw-on lids, and coffee cups or mugs with snap-on or screw-on lids.

~~B. Smoke or carry a lighted or smoldering pipe, cigar, cigarette, or tobacco or use any electronic smoking product or device that causes smoke, mist or vapor in any form.~~

~~C~~B. Operate any radio, tape player, speaker or other such instrument that is audible to any other person ~~on a transit vehicle.~~. This does not include use of headphones to play an audio device so long as it is not audible to any other person ~~on a transit vehicle~~.

~~D~~C. Expectorate.

~~E~~D. Discard litter in any place other than a designated trash container.

~~F~~E. Extend ~~his/her~~their head, hand, arm, foot, leg, or other portion of the body through any Transit Vehicle window.

~~G~~F. Interfere in any manner whatsoever with the operator or operation of ~~any bus~~the MTS System.

G. Bring onboard cargo that blocks aisles, doors, steps, or ~~trolley.~~ emergency exits of a Transit Vehicle or otherwise violates MTS's Full Cart, Stroller, and Cargo Policy (https://www.sdmts.com/rider-info/how-ride/rules-riding).

~~H. Possess an open alcoholic beverage container, irrespective of whether the container is spill-proof or screw-top.~~

~~I. Ride any bicycle, skateboard, or scooter.~~

H. Bring cargo that is wet, leaking or hazardous, or that would leave grease, oil, paint, dirt, or any other substance on the MTS system

I. Ride any bicycle, skateboard, or scooter on the MTS System; provided, however, that this does not apply to an activity that is necessary for utilization of a MTS System facility by a bicyclist, including but not limited to an activity that that is necessary for parking a bicycle or transporting a bicycle aboard a Transit Vehicle, if that activity is done in compliance with MTS's rules for bikes (https://www.sdmts.com/rider-info/how-ride/bikes) and in a manner that does not interfere with the safety of the bicyclist or other patrons of the MTS System facility.

J. ~~No person shall put his~~Place their foot on any seat or bench provided for ~~any~~ passengers ~~on a bus or trolley~~, or place any article on such seat which would leave grease, oil, paint, dirt, or any other substance on such seat or bench.

K. ~~No person shall activate~~Activate without reasonable justification, mutilate, deface or misuse in any manner, any safety device or intercom ~~located onboard a bus or trolley~~.

L. ~~No person shall ride~~Ride upon the outside or roof of any ~~bus~~Transit Vehicle.

M. Except MTS employees, agents, or authorized visitors, attempt to unlock or ~~trolley.~~enter the enclosed Trolley operator cabin.

~~M. No person shall urinate~~N. Urinate or defecate in or upon unauthorized locations ~~on the transit vehicle~~ unless the person cannot comply as a result of a disability, age, or a medical condition.

~~N. No person shall post~~O. Post or affix signs, advertisements, circulars, handbills, or written material ~~on or within a transit vehicle~~.

~~O. No person, except~~P. Except other individuals with a disability or ~~elderly persons, shall~~seniors, fail to comply with any lawful request from MTS personnel to vacate Priority Seating if an individual with a disability or ~~elderly person~~senior needs to sit in Priority

Seating.

~~P. No person, except~~Q. Except other individuals with a disability using a wheelchair, ~~shall~~ fail to comply with any lawful request from MTS personnel to vacate a Wheelchair / Securement area if an individual with a disability using a wheelchair needs to use the Wheelchair / Securement area. This prohibition shall not include when:

(1) An individual with a disability, whom due to some disability related reason, needs to remain in the Wheelchair / Securement Area;

(2) An individual with a disability who uses a non-wheelchair mobility device that cannot, either for physical limitations or safety concerns, be located in any other area of the bus or trolley; or

(3) ~~An elderly person~~A senior, whom due to a physical limitation, needs to remain in the Wheelchair / Securement Area.

~~Section 13.5: Prohibited Actions on or About a Transit Facility~~

~~A. No person (except~~R. Except MTS~~/SDTI/SDTC~~ employees, agents, or authorized visitors~~) shall,~~ enter upon the roadbed, tracks, structures, right-of-way, or other parts of a ~~transit facility~~Transit Facility, which are not open to passengers or to the public.

~~B~~S. No person shall drink any alcoholic beverage or possess an open alcoholic beverage container ~~on or in a transit facility~~, irrespective of whether the container is spill-proof or screw-top, except on premises licensed therefor.

~~C. No person shall sit~~T. Sit, lie, or stand with any portion of ~~his/her~~their body extending within 8 feet 6 inches of the centerline of the outside rail on straight track of within 9 feet 6 inches of the centerline of the outside rail on curved track except while entering or alighting from a ~~trolley~~Trolley stopped at that ~~station~~Trolley Station.

~~D. No person shall injure~~U. Injure, deface, destroy, loosen, remove, or tamper with the ~~transit facility~~MTS System.

~~E. No person shall injure~~V. Injure, mutilate, deface, alter, change, displace, remove, or destroy any sign, notice, signal, or advertisement on the ~~transit facility~~MTS System.

~~F. No person shall interfere~~W. Interfere with any lamp, electric light, electric fixture, or density on the ~~transit facility~~MTS System.

~~G. No person shall write~~X. Write, paint, or draw any inscription or figure on or deface ~~any transit facility~~on the MTS System.

~~H. No person shall disobey~~Y. Disobey or disregard the notices, prohibitions, instructions, or directions on any sign posted ~~on the transit facility~~.

~~I. No person shall interfere~~Z. Interfere with, encumber, obstruct, or render dangerous any ~~transit facility.~~

~~J. No person shall throw~~MTS System.

AA. Throw or project a stone ~~or other,~~ missile or object at any ~~trolley, bus~~MTS System or ~~at any person or thing on or in the transit facility~~person.

~~K. No person shall throw or project a stone or other missile from any transit facility or transit~~

~~vehicle.~~

~~L. No person shall fail~~BB. Fail or refuse to comply with any lawful order or direction of any MTS inspector, security officer, whether an employee or designated agent of MTS, or any peace officer.

~~M. No person shall do~~CC. Do, aid, abet, or assist in doing any act which may be dangerous, harmful, or injurious to any person or property within the ~~transit facility~~MTS System, said act being not specifically prohibited herein.

~~N. No person shall put his foot on any bench provided for any passengers of the transit facility or place any article on such bench which would leave grease, oil, paint, dirt, or any other substance on such seat.~~

~~O. No person shall urinate or defecate in or upon unauthorized locations on the transit facility unless the person cannot comply as a result of a disability, age, or a medical condition.~~

~~P. No person shall post or affix signs, advertisements, circulars, handbills, or written material on or within the transit facility.~~

~~Q. No person shall climb~~

DD. Climb upon or jump the trolley couplers.

~~R. No person shall discard litter in any transit facility.~~

~~S. No person shall loiter~~EE. Loiter in the immediate vicinity of any posted property.

~~T. No person shall tailgate.~~

~~U. Operate any radio, tape player, speaker or other such instrument that is audible to any other person at transit centers, trolley stations, bus shelters, and bus stops on public or private property. This does not include use of headphones to play an audio device so long as it is not audible to any other person.~~FF. Tailgate.

Section 13.~~6~~5: Animals

A. Pets

No person shall bring, carry unto, or convey upon the transit facility or transit vehicle, ~~a dog, or other~~an animal, including an emotional support or comfort animal, , unless it is completely enclosed in a carrying case, which can be accommodated in the lap of a passenger with no danger or annoyance to other passengers. This rule shall not apply to a service animal.

B. Service Animals

A service animal is trained to assist persons with disabilities. Such animals shall be properly harnessed ~~when possible.~~, leashed, or tethered, unless the individual's disability prevents using these devices or these devices interfere with the service animal's safe, effective performance of tasks. . The service animal must not occupy a seat or block a path of travel, including aisles and access doors. MTS reserves the right to inquire about the status of such animals, including whether an animal is a service animal and what task the service animal has been trained to perform.

Service animals must be under the control of the person at all times and must be housebroken. If person does not take effective action to control the service animal, if the service animal is causing

serious disruption to operations, or if the service animal is a direct threat to the health or safety of passengers, personnel, MTS transit facilities or MTS transit vehicles, MTS can ask that the service animal be removed from MTS property.

C. Damage

In the event that an animal or service animal causes damage to any transit facility or transit vehicle, the person responsible for the animal or service animal may be liable for reimbursement to MTS for damages.

Section 13.~~7~~6: First Amendment Activity

No person shall hold any meeting, perform any ceremony, make any speech, address or oration, exhibit, or distribute any sign, placard, notice, declaration, or appeal of any kind or description within any transit facility or upon any transit vehicle or platform without a First Amendment Activity Permit authorized per MTS Board Policy No. 62. First Amendment Activity is only allowed within Designated Areas as prescribed within MTS Board Policy No. 62.

Section 13.~~8~~7: Commercial Activity

No person shall engage in any commercial activity on or about any transit facility, transit station or transit vehicle. Commercial Activity includes, but is not limited to, the following prohibitions:

A. No person shall advertise, exhibit, sell, or offer for sale, hire or lease any object, merchandise, service, event or other property interest, except concessions under contract to MTS or as authorized per MTS Board Policy No. 21.

B. No person shall engage in commercial photography, filming or recording unless authorized per a Right of Entry Permit. This prohibition on commercial photography, filming or recording does not include:

(1) Use of photography or film through a handheld camera or phone for a transit passenger's own personal, non-commercial use. All transit passengers may use photography or film incidental to their transit uses within transit facilities, transit stations and transit vehicles provided the individual complies with all other sections of this Ordinance (e.g. Ord. 13 §§ 13.3 – Fares, 13.4 – Prohibited Conduct ~~Onboard Transit Vehicles, 13.5 Prohibited Actions on or About a Transit Facility~~);

(2) News media crews filming staged events, scheduled press conferences or other non-breaking news topics which require prior approval from the MTS Marketing Department; and

(3) News media crews filming breaking news (an event that cannot be covered at any other time or location and the immediacy of the event does not allow for obtaining prior approval) are subject to reasonable restrictions and conditions, such as MTS staff and transit security monitoring and directing the activities to ensure safety.

Section 13.~~9: Bicycles~~

~~Bicycles are permitted on transit vehicles under the following conditions:~~

~~A. Bicyclists must be at least 16 years of age and have a valid proof of payment of fare.~~

~~B. Only one bicycle is allowed onboard a trolley during the hours of 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. weekdays. At any other time, no more than two bicycles per trolley will be allowed. No bicycles will be permitted in the aisle ways at any time.~~

~~C. On high-floor trolleys (2000 series trolleys), bicycles will be permitted to board trolleys at the rear doors only and must be placed against the rear driver's cab.~~

~~D. Bicyclists must remain with their bicycles at all times.~~

~~E. When part of a group charter, more than two bicycles per car may be permitted at the sole discretion of MTS.~~

~~Section 13.108~~: No Smoking or Use of Any Device That Causes Smoke, Mist or Vapor

No person shall smoke ~~any materials, whether tobacco~~ or ~~any other product, using a~~ carry a lighted or smoldering pipe, cigar, cigarette, ~~cigar, pipe, or any other apparatus, or utilize any smoking device,~~tobacco, cannabis cigarette, ~~cigar, pipe,~~ or similar product, or use any electronic smoking product or ~~other~~ device that causes smoke, mist or vapor in any form, at the following locations owned, operated, or controlled by MTS, SDTI and/or SDTC unless otherwise posted:

A. Within 25 feet from any bus stop;

B. Within 25 feet of any trolley station; ~~and~~

C. Within 25 feet of any transit facility~~.~~; and

D. Within a transit vehicle.

Amended: 6/18/2026
Amended: 01/14/2016
Amended: 06/18/2015
Amended: 01/19/2012
Amended: 05/28/2009
Amended: 11/13/2008
Amended: 06/28/2007
Amended: 01/18/2007
Amended: 06/09/2005
Amended: 05/26/2005
Amended: 10/28/2004
Adopted: 08/09/2001

Clerk Affidavit

PASSED AND ADOPTED, by the Board of Directors this 18th day of June 2026. The Ordinance amendment was adopted by the following vote:

AYES:

NAYS:

ABSENT:

ABSTAINING:

Chairperson
San Diego Metropolitan Transit System

ATTEST my hand and the seal of the San Diego Metropolitan Transit System this 18th day of June 2026.

Approved as to form:

Clerk of the Board
San Diego Metropolitan Transit System

General Counsel
San Diego Metropolitan Transit System

Ordinance No. 13

Metropolitan Transit System

Agenda Item No. 15

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Proposed Amendments to For-Hire Vehicle Services Regulations within MTS Ordinance No. 11 and MTS Board Policy No. 34

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors adopt the proposed amendments to Ordinance No. 11 "An Ordinance Providing for the Licensing and the Regulating of Transportation Services Within the City and County by the Adoption of a Uniform Paratransit Ordinance" and revisions to Board Policy No. 34 "For-Hire Vehicle Services".

Taxicab Advisory Committee (TAC) Recommendation
At its May 13, 2026 meeting, the TAC voted to forward a recommendation to the MTS Board of Directors to adopt the proposed revisions to MTS Ordinance No. 11 and MTS Board Policy No. 34, with 9 in favor (Committee Members: TAC Chair Sean Elo-Rivera, Gonzalo Ayala, Aklilu Fray, Yona Tekeste Kahsai, Eduardo Gonzalez, Peter Zschiesche, Thanh Nguyen, Mark Nichols, and Francisco Bates), voted yes); 1 not in favor (Committee Member Alemayehu Tegegne); and 6 absent (Committee Members Able Seifu, Kidane Tesfagebriel, Letty Canizlez, Cesar Lopez, Horacio Sanchez, and David Tasem were absent).

Budget Impact

None with this action.

DISCUSSION:

Per MTS's enabling legislation, MTS may enter into agreements with jurisdictions to regulate For-Hire Vehicles (FHV) such as taxicabs, non-emergency medical vehicles, low-speed vehicles, charter vehicles and jitneys. FHV regulations are intended to ensure each vehicle has undergone a safety inspection; each vehicle has valid liability insurance; each permit holder (i.e. business owner) has passed a fingerprint-based criminal background check; confirm drivers have been validly licensed by the Sheriff's Department; investigate passenger complaints; and provide in the field monitoring and enforcement. By statute, the MTS For-Hire Vehicle Administration department (FHVA) is statutorily required to be full cost recovery. Under MTS's agreements with various jurisdictions, MTS's costs to administer for-hire vehicle regulations is covered by fees assessed on permit holders. No direct funding to MTS is provided by the applicable cities or the County of San Diego.

MTS Ordinance No. 11 describes the requirements to operate FHV transportation service in MTS's areas of jurisdiction. MTS Board Policy No. 34 describes how MTS establishes maximum rates of fares and regulatory fees. MTS continually aims to identify ways to reduce or remove its regulatory requirements and assist the industry to remain competitive so long as its main policy goals of ensuring public safety and consumer protection are being met. Aligned with this purpose, MTS conducted a comprehensive review and recommends the proposed revisions to MTS Ordinance No. 11 and MTS Board Policy No. 34 as follows:

County of San Diego Sheriff's Office (Sheriff) Licensing of Drivers – MTS Ordinance No. 11, Sections 1.1 (k), 1.8 (q), 1.12, 1.13 (c), 1.14 (removing in its entirety), 1.16, 1.17 (f), and 1.19 (a)

A Driver's Identification Card is a license issued by the County of San Diego Sheriff's Office (Sheriff) which permits a person to drive a for-hire vehicle. MTS requires all permitted vehicles to be operated by a driver with a valid Sheriff issued Driver's Identification Card. Sheriff is responsible for deciding applicants' eligibility requirements, requiring the completion of background checks and drug testing on applicants, and deciding what information is included on the Sheriff's Driver Identification Card.

Sheriff has historically performed this function for all taxicab drivers. Many years ago, the Sheriff agreed to also conduct this function for other for-hire vehicle drivers, such as non-emergency medical vehicle drivers, low-speed vehicle drivers, jitney drivers and charter drivers. Sheriff has both relied on its own regulatory ordinances to process eligibility decisions relating to taxicab drivers and has relied on MTS Ordinance No. 11 to process certain eligibility decisions for other FHV drivers since the Sheriff's regulatory ordinances were silent on the eligibility requirements for drivers of non-emergency medical vehicles, jitneys, charters and low speed vehicles.

Sheriff recently updated its regulatory ordinances to include Driver Identification Card eligibility requirements for all permit holder types and no longer relies on MTS Ordinance No. 11 provisions. Since it is no longer necessary to maintain Driver Identification Card eligibility requirements in MTS Ordinance No. 11, and to reduce confusion since MTS does not license drivers of for-hire vehicles, MTS proposes removing Driver Identification Card eligibility requirements from MTS Ordinance No. 11.

Rates of Fare for Non-Emergency Medical, Charters, Jitney, Low-Speed Vehicles – MTS Ordinance No. 11 Sections 1.3, 1.13 (a)(6), 2.2 (a), 2.2 (h), 3.1, 4.1, 5.1, 6.1, and 7.3

It has been FHVA's requirement that non-emergency medical, charters, jitney, and low-speed vehicle permit holders notify MTS of the rates they will charge passengers and/or organizations when applying for a permit. However, since there are no maximum rates of fare established for non-emergency medical, charters, jitney, and low-speed vehicles, the process is an unnecessary step and removal of this requirement is recommended. Nonetheless, FHVA will continue to maintain the authority to investigate any complaint that a permit holder or driver charged more than the disclosed or agreed upon rate.

Annual Fee Schedule - MTS Ordinance No. 11 Section 1.5 and MTS Board Policy No. 34 Section 34.4.2

By statute, MTS's FHVA activities must be full cost-recovery; this means that MTS transit operation funding cannot be used to fund FHVA functions. Since no funding is provided to MTS by the cities or the County for these activities, all expenses of the FHVA must be paid by the

fees received from permit holders. Fees are established each year as part of the FHVA Annual Fee Schedule. FHVA provides the proposed fee schedule to the MTS TAC at a public hearing, and then after review of comments, the Chief Executive Officer (CEO) adopts and publishes the fee schedule on the FHVA website and notifies all permit holders. A limited appeal may be filed on the sole issue of "whether the fee or charge exceeds the reasonable costs of personnel salaries and administrative overhead associated with the particular administrative service or function." The limited appeal is reviewed first by the CEO and then if the appeal is denied, the opportunity to be heard by the Office of Administrative Hearing Administrative Law Judge is provided. The decision by the Administrative Law Judge may be appealed to Superior Court.

Whenever there is an appeal hearing, FHVA hires outside legal counsel to defend MTS in the administrative hearings, pays for all administrative law judge hearing costs (court reporter, hearing judge rate, hearing fees etc.), and staff time may be needed to prepare and be available as a potential witness to the hearing.

Last year, FHVA undertook a review of its budget and fee schedule establishment process. Based on this review, FHVA recommended various changes, which includes adding a working group that includes all permit holder types and other regulatory peer agencies to ensure feedback is provided to staff before adoption of a new Fee Schedule, developing a memorandum explaining the process it undertook to set the new fees to increase transparency into the process, and revising how it explains and presents information about the budget and fee setting to better explain the policy goals involved.

MTS also undertook a review of the appeal process and found that offering the ability to appeal these administrative fees, which is similar to fees charged by municipalities for costs such as permit application fees or other similar administrative tasks, is not legally required or customarily offered by other similar public agencies.

Since FHVA has implemented various improvements to increase stakeholder feedback and transparency into the budget and fee schedule process, and this may be a duplicative proceeding to defend as it can again be appealed to Superior Court, it is recommended that the ability to file a limited appeal on the fee schedule be removed.

<u>Removing Permit Transfers – MTS Ordinance No. 11, Sections 1.5 and 1.11 (e)</u>

After completing a comprehensive review of the Annual Fee Schedule, the ability to transfer a vehicle and the associated fees were removed from the 2026 FHVA Fee Schedule. Applicants may acquire a new permit through the permit application process if interested in a new permit. Therefore, it is recommended that language regarding transferring permits also be removed from MTS Ordinance No. 11.

<u>Airport Access Fees and Refusing Trips Based on Trip Destination into Private Property – MTS Ordinance No. 11, Sections 1.8, and 2.2 (b) and MTS Board Policy No. 34, Section 34.3</u>

The San Diego International Airport (Airport) charges an Airport Access Fee for all taxicabs *picking up* passengers at the Airport. The majority of taxicab permit holders have an Airport-required transponder and pay annual Airport fees to participate in this program. The Airport is considering requiring that any taxicabs *dropping off* a passenger pay a drop-off fee. Similar to the pick-up process, dropping off at the Airport by a taxicab will also require a transponder and payment of annual fees to the Airport.

Before this change in Airport rules, a taxicab that did not routinely operate out of the Airport did not have to pay for a transponder or annual fees when dropping off passengers at the Airport. If implemented by the Airport, any taxicab that accepts an Airport destination trip may soon be required to pay these annual fees. FHVA anticipates some taxicab permit holders may choose not to accept Airport destination trips if these new requirements and associated fees become effective. Since this is private property, FHVA cannot require taxicab permit holders to participate in the Airport Access Fee program. Therefore, FHVA proposes revising MTS Ordinance No. 11 to clarify language regarding Airport Access Fees and allow taxicabs to opt-out of taking trips to certain destinations if within private property, so long as it is properly disclosed to prospective passengers prior to agreeing to a trip.

Although FHVA will not require for-hire vehicles to enter private property when they do not maintain the required authorizations, FHVA recognizes that it could be detrimental for the taxicab industry if some taxicabs do not provide trips to the Airport. Passengers may be negatively impacted if they are uncertain if a taxicab will take them to the Airport. FHVA staff will be reviewing what incentives can be used to increase the likelihood of all taxicabs offering service to the Airport.

Non-Emergency Medical Vehicle Requirements– MTS Ordinance No. 11, Sections 1.8 (j), 5.2, and 5.3

MTS utilizes a non-emergency medical vehicle working group to receive feedback from the industry on FHVA requirements. MTS recently met with this working group to speak with them on recommendations from the County of San Diego on ways MTS Ordinance No. 11 should be revised in relation to non-emergency medical and gurney van trips. The working group provided comments and recommended revisions to MTS Ordinance No. 11.

Currently, it is MTS practice to require that non-emergency medical vehicles *and charter vehicles* have a fire extinguisher, red reflectors, and a first aid kid. To follow state requirements, MTS recommends removing the requirement that charter vehicles maintain this equipment and only require this specialty equipment for non-emergency medical vehicles.

Further, it is recommended that MTS Ordinance No. 11 be revised to add applicable state requirements for Medi-Cal reimbursed non-emergency medical and gurney vans trips. This includes what equipment should be maintained in a gurney van, use of seatbelts for ambulatory passengers, and other operating requirements.

Lastly, if a non-emergency medical vehicle is being operated by both a driver and a driver assistant, the driver assistant will now also be required by MTS and Sheriff to maintain a Sheriff-issued Driver Identification Card and be trained in CPR and first-aid.

Interior Postings Within Vehicles – MTS Ordinance No. 11, Section 1.8 (m)

Currently, taxicabs are required to provide interior postings that list their permit type, permit number, contact information for FHVA, and the permit holder name. MTS recommends adding that the taxicab dispatch name, phone number, and email be also included on this listing. This information will assist passengers in the event they forget or lose items by giving them contact information for the applicable dispatch service organization that can provide assistance for these types of issues.

Removing Physical Map Requirement – MTS Ordinance No. 11, Section 1.8 (o)

Currently, taxicabs are required to either use GPS or a physical, recent map to efficiently identify the best route to reach a passenger's desired destination. Carrying or using a physical map is no longer necessary due to technological advances with GPS. It is recommended this optional requirement to have a physical map be removed.

Electronic Trip Receipts to Passenger - MTS Ordinance No. 11, Section 1.8 (s)

Currently, a driver is required to offer a printed receipt to a passenger after payment of fare. It is recommended that this requirement be revised to require the driver to offer either a printed or electronic receipt, such as through a text or email. It is FHVA's understanding that all taxicabs already have the capability to offer electronic receipts.

Agreements with Private Businesses – MTS Ordinance No. 11, Section 1.8 (x)

Currently, there is a provision within MTS Ordinance No. 11 that prohibits for-hire vehicles from soliciting business from or making agreements with commercial businesses such as a hotel. This prohibition has not in practice been enforced by FHVA and may unnecessarily restrict for-hire vehicles from garnering business. Therefore, it is recommended that it be removed.

Contactless Payments – MTS Ordinance No. 11, Sections 1.8, 2.2, and 2.3

Currently, it is required that taxicabs accept all major credit cards. However, not all taxicabs maintain the appropriate software or equipment to accept contactless credit card payments. The Airport has received complaints from passengers about taxicabs not offering this type of payment method, since many passengers are now utilizing contactless payments as their sole way of paying for goods and services. Contactless payment is becoming a more customary payment method offered by businesses and it is recommended that MTS Ordinance No. 11 be revised to require that this technology advancement be offered by taxicabs. It is unknown to FHVA how many taxicabs do not maintain the necessary equipment to offer contactless payment. FHVA will develop a marketing and enforcement plan accordingly.

Days to Place Vehicle in Service – MTS Ordinance No. 11, Section 1.13 (a)(7)

Currently, it is required that a permit holder must provide a vehicle for inspection after applying for a permit within ninety (90) days after the approval date. In practice, it is rare for a permit holder to need this length of time to provide a vehicle for inspection and thus it is recommended this be reduced to 60 days.

Removing Taxicab Stand Filing Fee – MTS Ordinance No. 11, Section 2.5 (c)

After completing a comprehensive review of the Annual Fee Schedule, the 2026 Fee Schedule removed the fee to request a new taxicab stand be installed. Since a taxicab stand would benefit all taxicabs, it was determined that it would not be appropriate to charge the fee upon the requestor. It is recommended this provision be removed to align with the removal of the fee from the Fee Schedule.

Other revisions to MTS Ordinance No. 11 are minor and non-substantive (e.g. replacing the term "medallion" with "permit number"; replacing the term "spare vehicle" with "temporary

vehicle"; moving provisions that only apply to one vehicle mode out of the general operating requirement sections).

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. Proposed Revisions to MTS Ordinance No. 11 (red-line track changes)
B. Proposed Revisions to MTS Board Policy No. 34 (red-line track changes)

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

CODIFIED ORDINANCE NO. 11
(as amended through ~~March 14, 2024~~June 18, 2026)

An Ordinance Providing for the Licensing and the Regulating of Transportation Services Within the City and County by the Adoption of a Uniform Paratransit Ordinance

MTS CODIFIED ORDINANCE NO. 11

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM

CODIFIED ORDINANCE NO. 11
(as amended through ~~March 14, 2024~~June 18, 2026)
An Ordinance Providing for the Licensing and the Regulating
of Transportation Services Within the City and County By the Adoption of
a Uniform Paratransit Ordinance

SECTION 1.0 - GENERAL REGULATIONS

Section 1.1 - Definitions

The following words and phrases, wherever used in this section, shall be construed as defined in this section, unless from the context a different meaning is intended, or unless a different meaning is specifically defined and more particularly directed to the use of such words or phrases.

(a) "Board" shall mean the Board of Directors of the San Diego Metropolitan Transit System (MTS).

(b) "Charter vehicle" shall mean every vehicle which:

(1) Transports passengers or parcels or both over the public streets of the City;

(2) Is routed at the direction of the hiring passenger;

(3) Is prearranged in writing for hire;

(4) Is not made available through "cruising"; and

(5) Is hired by and at the service of a person for the benefit of themselves or a specified group.

(c) "Chief Executive Officer" shall mean the Chief Executive Officer of MTS or their designated representative.

(d) "City" and "Cities" shall mean the incorporated areas of the Cities of Chula Vista, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, Santee and any other City that has entered into a contractual agreement with MTS for the licensing and regulation of transportation services.

(e) "Compensation" shall mean any money, thing of value, payment, consideration, reward, tip, donation, gratuity or profit paid to, accepted, or received by the driver or owner of any vehicle in exchange for transportation of a person, or persons; whether paid upon solicitation, demand or contract, or voluntarily, or intended as a gratuity or donation.

(f) “County” shall mean the unincorporated area of the County of San Diego located within MTS’s jurisdictional boundaries if entered into a contractual agreement with MTS for the licensing and regulation of transportation services.

(g) "Cruising" shall mean the movement over the public streets of a taxicab or low-speed vehicle (LSV) in search of prospective passengers; except the term does not include either the travel of a taxicab or LSV proceeding to answer a call for service received by telephone or radio

from an intended passenger or the travel of such a vehicle, having discharged a passenger or passengers, returning to the owner's place of business or to its established point of departure.

(h) "Days" shall mean working days, exclusive of weekends and holidays for which MTS offices are closed.

(i) "Doing business" shall mean accepting, soliciting or transporting passengers for hire or compensation in a City or County.

(j) "Driver" shall mean every person operating any for-hire vehicle.

(k) "Driver's identification card" shall mean license, issued ~~pursuant to this Ordinance,~~by the County of San Diego Sheriff's Office (Sheriff), which permits a person to drive or assist in the operation of a for-hire vehicle and safety of the passenger within the City or County.

(l) "Electronically Booked" shall mean a taxicab trip booked through a taxicab dispatch service organization or transportation network company's online enabled application or internet website that provides an up-front price. An up-front price shall be considered the total cost including all fees, exclusive of tip, that a passenger has agreed to pay at the time of booking.

(m) "Employ" as used in this Ordinance includes any form of agreement or contract under which the driver may operate the permit holder's for-hire vehicle.

(n) "Exclusive ride" shall mean exclusive use of a for-hire vehicle by one or more related passengers at a time.

(o) "For-hire vehicle" shall mean every vehicle, other than public transit vehicles or vehicles involved in an organized carpool not available to the general public, which is operated for any fare for compensation and used for the transportation of passengers over public streets, irrespective of whether such operations extend beyond the boundary limits of said City or County. Such for-hire vehicles shall include taxicabs, vehicles for charter, jitneys, nonemergency medical vehicles, sightseeing vehicles, and LSVs.

(p) "Group ride" shall mean shared use of a taxicab or LSV where a group of related passengers enter at the same point of origin and disembark at the same destination and pay a single fare for the trip.

(q) "Hearing officer" shall mean any person or entity that meets the requirements of this Ordinance and that has been retained to conduct administrative hearings.

(r) "Jitney" shall mean every vehicle which:

(1) Transports passengers or parcels or both over the public streets of the City; and

(2) Follows a fixed route of travel between specified locations along its route on a variable schedule or operates a flexible route within a geographic boundary and specific timeframes as approved by MTS, with the fare based on a per capita charge established in its permit.

(s) A "low-speed vehicle" or "LSV" is a motor vehicle, other than a motor truck, having an unladen weight of 1,800 pounds or less, that is capable of propelling itself at a minimum speed of 20 miles per hour and a maximum speed of 25 miles per hour, on a paved level surface. It shall

only operate within a geographic boundary as approved by MTS. For the purposes of this section, a "low-speed vehicle" or “LSV” is not a golf cart, except when operated pursuant to California Vehicle Code Section 21115 or 21115.1.

~~(t) "Medallion" shall mean the numbered plate, sticker, or decal issued by MTS to the permit holder which is displayed on a for-hire vehicle to indicate the authorized use or uses of that vehicle.~~

(~~u~~t) "MTS" shall mean the San Diego Metropolitan Transit System, a public agency created pursuant to Public Utilities Code Section 120050 et seq.

(~~v~~u) "MTS inspector" shall mean those individuals, regardless of job title, who are authorized by the Board, by ordinance, to enforce the provisions of this Ordinance.

(~~w~~v) "Nonemergency medical vehicle" shall mean every vehicle which: transports persons, regardless of whether specialized transportation equipment or assistance is needed, for primarily medical purposes, over the public streets of the City. Medical purposes is defined as providing transportation services to or from the following places: hospitals, convalescent homes, retirement homes, homes receiving funding for the board and care of residents living in those homes, medical or rehabilitation clinics, senior citizen centers, and any other like social service category, over the public streets of the City. It shall be the responsibility of the transportation provider to determine if the service is primarily for medical purposes.

(~~x~~w) "Operate" or "Operating" shall refer to the solicitation or acceptance of a fare within City or County for compensation or providing passenger transportation for compensation, regardless if such compensation is obtained from the passenger or a third party. It shall also include, as the context may require, the act of driving, managing or directing the utilization of one or more for-hire vehicles.

(~~y~~x) "Owner" shall mean the person, partnership, association, firm or corporation that is the registered owner of any for-hire vehicle and that holds the right to use the vehicle for its advantage.

(~~z~~y) "Passenger" shall mean every occupant other than the driver of the for-hire vehicle.

(~~aa~~z) "Permit" shall mean the authority under which a person, firm, partnership, association, or corporation may operate a for-hire vehicle as a business.

(~~bb~~aa) "Permit holder" shall mean any person or approved entity operating a business under a for-hire vehicle permit.

(bb) “Permit Number" shall mean the numbered plate, sticker, or decal issued by MTS to the permit holder which is displayed on a for-hire vehicle to indicate the authorized use or uses of that vehicle.

(cc) "Shared ride" shall mean nonexclusive use of a for-hire vehicle by two or more unrelated passengers traveling between different points of origins and/or destination, and traveling in the same general direction.

(dd) "Sightseeing vehicle" shall mean every vehicle which:

(1) Transports passengers for sightseeing purposes of showing points of interest over the public streets of the City; and

(2) Charges a fee or compensation therefor; regardless of whether any fee or compensation is paid to the driver of such sightseeing vehicle, either by the passenger or by the owner or by the person who employs the driver or contracts with the driver or hires such sightseeing vehicle with a driver to transport or convey any passenger; and irrespective of whether or not such driver receives any fee or compensation for their services as driver.

(ee) "Stands" shall mean public areas designated for specific use of for-hire vehicles.

(ff) "Street" shall mean any place commonly used for the purpose of public travel.

(gg) “Substantially Located” shall mean where the primary business address of the taxicab permit holder is located and/or the jurisdiction where the largest share of the taxicab permit holder’s total number of prearranged and non-prearranged trips originate over the previous calendar year, as determined annually. Trip logs and/or other documentation shall be used to substantiate the jurisdiction where the largest share of taxicab permit holder’s total number of originating trips occur over the applicable time period.

(hh) "Taxicab" shall mean every vehicle other than a vehicle-for-charter, a jitney, a nonemergency medical vehicle, a sightseeing vehicle, or LSV which:

(1) Carries not more than eight (8) passengers excluding the driver;

(2) Transports passengers or parcels or both over City or County public streets;

(3) Is made available for hire on call or demand through "cruising," at taxi stands, by telephone, mobile telephone application or website, or other communication devices to destination(s) specified by the hiring passenger; and

(4) Is Substantially Located within the jurisdiction of City and/or County.

(ii) "Taximeter" shall mean any instrument, appliance, device, or machine by which the charge for hire of a passenger-carrying vehicle is calculated, either for distance traveled or time consumed, or a combination of both, and upon which such charge is indicated by figures. Includes both a Hard Meter and a Soft Meter.

(1) A Hard Meter is a Taximeter that has a prefixed fare with an external seal approved by the County of San Diego Agriculture, Weights and Measures and mileage is calculated based on distance and time.

(2) A Soft Meter is a Taximeter that is provided through a smartphone or tablet that uses GPS or other on-board diagnostics approved by the California Department of Food and Agriculture Division of Measurement Standards to calculate distance and rates.

(jj) "Vehicle" is a device by which any person or property may be propelled, moved, or drawn upon a street, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

(kk) “Vehicle for Developmentally Disabled Persons (VDDP) driver certificate” shall mean certificate issued by California Highway Patrol pursuant to Vehicle Code section 12523.6, which is required for any driver who primarily transports persons with developmental disabilities on a for-hire basis. A VDDP driver certificate with a commercial driver’s license may be used in lieu of a driver identification card to drive a for-hire vehicle within the City or County, unless for a taxicab.

(Section 1.1 amended 6/18/2026)
(Section 1.1 amended 3/14/2024)
(Section 1.1 amended 10/19/2023)
(Section 1.1 amended 1/20/2022)
(Section 1.1 amended 11/12/2020)
(Section 1.1 amended 10/10/2019)
(Section 1.1 amended 2/14/2019)
(Section 1.1 amended 11/8/2018, effective 1/1/2019)
(Section 1.1 amended 9/20/2018)
(Section 1.1 amended 12/14/2017)
(Section 1.1 amended 5/12/2016)
(Section 1.1 amended 8/7/2003)
(Section 1.1 amended 11/14/2002)
(Section 1.1 amended 6/24/1999)
(Sections 1.1(d), 1.1(R)(1) amended 6/22/1995)
(Section 1.1 amended 1/12/1995)
(Section 1.1 amended 6/27/1991; effective 7/27/1991)
(Section 1.1 amended 5/23/1991; effective 6/23/1991)

Section 1.2 - Operating Permits

(a) No person shall engage in the business of operating any for-hire vehicle or in the business of providing any vehicle for the operation of vehicle for-hire services within the Cities or County without first having obtained an operating permit from the Chief Executive Officer or designated representative, which permit has not been revoked, suspended or otherwise canceled or terminated by operation of law or otherwise. A separate permit is required for each for-hire vehicle operated or provided for operation.

(b) An operating permit represents the granting of a privilege to operate a for-hire vehicle within the Cities, County or zones specified by the permit for the purpose of the public convenience and necessity. This privilege may be rescinded at any time by operation of law or otherwise.

(c) A person who obtains an operating permit shall be responsible for the provision of vehicle-for-hire services in accordance with the provisions of this Ordinance and shall exercise due diligence to assure that drivers of the permitted vehicles adhere to all pertinent requirements of this ordinance.

(Section 1.2 amended 11/8/2018, effective 1/1/2019)
(Section 1.2 amended 12/14/2017)
(Section 1.2 amended 8/7/2003)
(Section 1.2 amended 11/14/2002)
(Section 1.2 amended 6/24/1999)

Section 1.3 - Application for Permit

(a) All persons applying to the Chief Executive Officer for new permit(s) for the operation of one or more for-hire vehicles shall file with the Chief Executive Officer a sworn application on forms provided by the Chief Executive Officer, stating as follows:

(1) The applicant name, company name, doing business as ("DBA") name if different than company name, ~~mailing and~~ business address (a business address ~~or mailing~~

~~address~~ may include, ~~but is not limited to,~~ a ~~Post Office [PO] Box or~~ dispatch service address if a taxicab permit applicant), e-mail address, and telephone number of the permit applicant. If a taxicab permit applicant, the business address will also serve the purpose of establishing where Substantially Located;

~~(2) If applying as a corporation, operating~~(2) Operating records are required, as defined in Section 1.10;

(3) The name and address of all legal and registered owner(s) of the vehicle(s);

(4) The number of vehicle(s) for which a permit(s) is desired;

~~(5) The rates of fare which the applicant proposes to charge for vehicle-for-hire services. This requirement does not apply to taxicab permit applicants;~~

~~(6~~(5) If the application is for a jitney or LSV, a detailed description of the geographic area in which said permit shall be in ~~existence~~operation; and

(~~7~~6) Such other information as the Chief Executive Officer may in their discretion require.

b) The applicant shall also submit, with the application, a nonrefundable application fee prior to the permit approval. Upon issuance of the permit, the applicant shall also pay an initial nonrefundable permit vehicle regulatory fee to be determined by the Chief Executive Officer in order to recover the cost of processing such applications.

(Section 1.3 amended 6/18/2026
(Section 1.3 amended 3/14/2024
(Section 1.3 amended 1/20/2022)
(Section 1.3 amended 11/12/2020)
(Section 1.3 amended 11/8/2018, effective 1/1/2019)
(Section 1.3 amended 12/14/2017)
(Section 1.3 amended 2/12/2015)
(Section 1.3 amended 11/15/2012)
(Section 1.3 amended 8/7/2003)
(Section 1.3 amended 11/14/2002)

Section 1.4 - Issuance of Permit

(a) Before a permit may be approved or renewed, the applicant shall pay an initial regulatory fee in an amount to be determined by the Chief Executive Officer.

(b) The Chief Executive Officer shall deny the approval of a permit upon making a finding:

(1) That the applicant is under eighteen (18) years of age; or

(2) That- the applicant has been convicted of, or held by any final administrative determination to have been in violation of any statute, ordinance, or regulation which would have resulted in suspension or revocation of the permit in accordance with Section 1.13 of this Ordinance; or

(3) That the applicant provided false information of a material fact in an application within the past year.

(c) No permit shall be approved or renewed unless evidence of compliance with applicable MTS regulations.

(d) When the permit has been approved and upon determination by the Chief Executive Officer that the for-hire vehicle, after appropriate inspection, meets the requirements of this Ordinance, the Chief Executive Officer will issue a numbered ~~medallion~~Permit Number(s) to be affixed to the for-hire vehicle.

(Section 1.4 amended 6/18/2026)
(Section 1.4 amended 12/8/2022)
(Section 1.4 amended 11/12/2020)
(Section 1.4 amended 11/8/2018, effective 1/1/2019)
(Section 1.4 amended 12/14/2017)
(Section 1.4 amended 2/12/2015)
(Section 1.4 amended 11/15/2012)
(Section 1.4 amended 11/14/2002)

Section 1.5 - ~~Transfer and Administration of Permits~~Fee Schedule

~~(a) Each permit issued pursuant to the provisions of this section is separate and distinct and shall be transferable from the permit holder to another person or entity only with the approval of the Chief Executive Officer, and upon meeting the requirements of this Ordinance.~~

~~(b) The proposed transferee shall file with the Chief Executive Officer a sworn application for the transfer and shall comply with the requirements of Section 1.3. The permit holder shall certify in writing that the permit holder has notified the proposed transferee of the requirements of this section pertaining to the transfer of a permit. Whenever an application for a transfer of permit is filed, the Chief Executive Officer shall process the application for transfer in accordance with Section 1.4 of this Ordinance.~~

~~(c)~~ The Chief Executive Officer shall charge regulatory fees to affect the full cost recovery of activities associated with the administration, regulation, or issuance, ~~or transfer~~ of for-hire vehicle permits and associated records.

~~(1)~~ Changes in fee schedules affecting permits shall comply with MTS Board Policy No. 34 and be posted, at a minimum, on the MTS website and notice of such posting will be sent to all permit holders' email address. Changes shall be effective thirty (30) calendar days thereafter.

~~(2) Any person objecting to a particular fee or charge may file, within ten (10) calendar days of posting of such changes, an appeal for review with the Chief Executive Officer who shall thereafter process it in accordance with Section 1.17; provided, however, that the sole issue to be determined on review is whether the fee or charge exceeds the reasonable costs for personnel salaries and administrative overhead associated with the particular administrative service or function.~~

(Section 1.5 amended 6/18/2026)
(Section 1.5 amended 11/12/2020)
(Section 1.5 amended 11/8/2018, effective 1/1/2019)
(Section 1.5 amended 12/14/2017)

(Section 1.5 amended 2/12/2015)
(Section 1.5 amended 8/7/2003)
(Section 1.5 amended 11/14/2002)

Section 1.6 - Blank

The text of Section 1.6 is deleted in its entirety effective February 12, 2015.

(Section 1.6 deleted 2/12/2015)
(Section 1.6 amended 11/14/2002)

Section 1.7 - Blank

The text of Section 1.7 is deleted in its entirety effective October 24, 1998.

(Section 1.7 was deleted 9/24/1998)

Section 1.8 - Equipment and Operating Regulations

(a) No ~~medallion~~Permit Number shall be issued for a vehicle unless the vehicle conforms to all the applicable provisions of this Ordinance.

(b) The privilege of engaging in the business of operating a for-hire vehicle in a City or County granted in the permit is personal to the permit holder, who must be the owner of the for-hire vehicle. The rights, requirements, and responsibilities which attach to the permit remain with the holder at all times the for-hire vehicle is operated under the authority of the permit. These rights, requirements and responsibilities, which include, but are not limited to, the requirements of this Ordinance, will remain unaffected by any agreement or contractual arrangement between the permit holder and those persons who operate for-hire vehicles, irrespective of the form or characterization of the agreement under which the driver operates the for-hire vehicle.

(c) The permit holder shall maintain an email address, ~~mailing~~business address that can accept mail directed to company, and a business telephone in which the permit holder can be reached during reasonable business hours and during all hours of operation. The permit holder shall, in the case of any change in their email address, mailing address, or business telephone, notify the Chief Executive Officer in writing of such change within forty-eight (48) hours of the effective date of this change.

(d) If a taxicab, permit holders must participate in the pull-notice program pursuant to Section 1808.1 of the Vehicle Code and enroll all employed or contracted drivers who drive a vehicle for permit holder.

(1) Upon the termination of the employee or contractor driver, the permit holder shall notify the Department of Motor Vehicles (DMV) to discontinue the driver's enrollment in the pull notice system.

(2) Permit holders shall present upon request, during regular business hours, to MTS and/or the ~~Sheriff's Department~~Sheriff, as well as during annual permit renewal, proof of enrollment and names of any and all drivers enrolled in the DMV driver pull-notice program pursuant to Section 1.8(d) of this Ordinance.

(3) Permit holders who fall under one or more of the following categories must enroll in the DMV pull-notice program: if registered with the State of California as a Corporation

and or LLC; if own more than one vehicle; employs or contracts a lease driver(s); and/or vehicle is otherwise driven by more than one driver.

(e) Before a for-hire vehicle is placed in service and at least annually thereafter, the for-hire vehicle shall be delivered to a certified Automotive Service Excellence or Bureau of Automotive Repair registered facility for mechanical inspections, or other place designated by the Chief Executive Officer for inspection. Certified mechanics and MTS inspectors shall inspect the for-hire vehicle and its equipment to ascertain whether the vehicle complies with the provisions of this Ordinance. Failure to produce the vehicle for inspection within a timeframe determined by MTS shall be cause for suspension or revocation of the permit for such vehicle.

(f) Any MTS inspector or peace officer, after displaying proper identification, may make reasonable and periodic inspections of any for-hire vehicle operating under an MTS permit for the purpose of determining whether the vehicle is in compliance with the provisions of this Ordinance.

(g) Any for-hire vehicle which fails to meet the requirements of the California Vehicle Code or this section after inspection shall be immediately ordered out-of-service by an MTS inspector or peace officer if it is unsafe for service. Ordering a vehicle out-of-service does not constitute a suspension or revocation of the permit. A vehicle is deemed unsafe for service when any of the following conditions exists:

(1) Tires fail to meet the requirements of the California Vehicle Code;

(2) Headlights, taillights or signal lights are inoperable during hours of darkness (sunset to sunrise);

(3) Windshield wipers are inoperable during rainy conditions;

(4) Taximeter is not working, the Taximeter displays signs of tampering, the seal of a Hard Meter is broken, the County of San Diego seal of a Hard Meter is more than thirteen (13) months old from the date of issuance, a Service Agent’s temporary seal of a Hard Meter is more than ninety (90) days old from the date of issuance, or a Soft Meter displays technology not approved by the California Department of Food and Agriculture Division of Measurement Standards or does not appear to be operating as is intended or approved;

(5) Brakes, brake lights or brake system are inoperable or otherwise fail to meet the requirements of the California Vehicle Code;

(6) Excessive play in steering wheel exceeding three (3) inches;

(7) Windshield glass contains cracks or chips that interfere with driver's vision;

(8) Any door latch is inoperable from either the interior or exterior of the vehicle;

(9) Any seat is not securely fastened to the floor;

(10) Seat belts, when required, fail to meet requirements of the California Vehicle Code;

(11) Either side or rearview mirrors are missing or defective;

(12) Any vehicle safety system light is activated; and

(13) Any other condition which reasonably and rationally pertains to the operating safety of the vehicle or to passenger or pedestrian safety.

(h) If the vehicle is not unsafe but is unsuitable or otherwise in violation of this Ordinance or any vehicle condition/equipment section of the California Vehicle Code, the operator or permit holder, as appropriate, shall be subject to a seventy-two (72) hours correction notice.

(1) Failure to correct such violation within the seventy-two (72) hours shall then be cause to order the vehicle out-of-service. When a vehicle is ordered out-of-service, the ~~medallion~~Permit Number shall be immediately removed.

(2) Before the vehicle may again be placed in service, the violation shall be corrected and the vehicle shall be inspected by a certified ~~mechanics~~mechanic or MTS inspector

(3) The ~~medallion~~Permit Number shall be reaffixed when the MTS inspector finds that the vehicle meets prescribed standards.

(i) The interior and exterior of the for-hire vehicle shall be maintained in a safe and efficient operating condition, and meet California Vehicle Code requirements and the requirements of this Ordinance at all times when in operation. The following minimum vehicle standards must be maintained to comply with this section:

(1) Wheels. Hubcaps or wheel covers shall be on all wheels for which hubcaps or wheel covers are standard equipment.

(2) Body Condition. There shall be no tears or rust holes in the vehicle body and no loose pieces hanging from the vehicle body. Fenders, bumpers, and light trim shall be securely fixed to the vehicle. No extensive unrepaired body damage shall be allowed and exterior paint shall be free from excessive fading. The vehicle shall be equipped with front and rear bumpers. The exterior of the vehicle shall be maintained in a reasonably clean condition so as not to obscure approved vehicle markings.

(3) Lights. Headlights shall be operable on both high and low beam. Taillights, parking lights, signal lights, and interior lights shall all be operable.

(4) Wipers. Each vehicle shall be equipped with adequate windshield wipers maintained in good operating condition.

(5) Brakes. Both the parking and hydraulic or other brake system must be operable.

(6) Steering. Excessive play in the steering mechanism shall not exceed three (3) inches free play in turning the steering wheel from side to side.

(7) Engine. The engine compartment shall be reasonably clean and free of uncontained combustible materials.

(8) Mufflers. Mufflers shall be in good operating condition.

(9) Windows. The windshield shall be without cracks or chips that could interfere with the driver's vision. All other windows shall be intact and able to be opened and closed

as intended by the manufacturer. The windows and windshield shall be maintained in a reasonably clean condition so as not to obstruct visibility.

(10) Door Latches. All door latches shall be operable from both the interior and exterior of the vehicle.

(11) Suspension. The vehicle's suspension system shall be maintained so that there are no sags because of weak or broken springs or excessive motion when the vehicle is in operation because of weak or defective shock absorbers.

(12) Seats. All seats shall be securely fastened. Seat belts, when required by the California Vehicle Code, shall be installed. The upholstery shall be free of grease, holes, rips, torn seams, and burns.

(13) Interior. The interior of each vehicle and the trunk or luggage area shall be maintained in a reasonably clean condition, free of foreign matter, offensive odors, and litter. The seats shall be kept reasonably clean and without large wear spots. The door handles and doors shall be intact and clean. The trunk or luggage area shall be kept empty except for spare tire and personal container for the driver not exceeding one (1) cubic foot in volume and emergency equipment, to allow maximum space for passenger luggage and belongings.

~~(j) Each for-hire vehicle, except taxicabs and LSVs, shall contain:~~

~~(1) A fire extinguisher of the dry chemical or carbon dioxide type with an aggregate rating of at least 5 B/C units and a current inspection card affixed to it.~~

~~(2) A minimum of three (3) red emergency reflectors.~~

~~(3) A first-aid kit containing medical items to adequately attend to minor medical problems.~~

(k) In the event that a for-hire vehicle for which a permit has been approved is taken out of service, by the permit holder for maintenance or any purpose, other than a violation of any provision of this Ordinance, a ~~spare~~temporary vehicle operating permit may be granted. The ~~spare~~temporary vehicle operating permit shall only be valid for the vehicle for which it was issued. The permit holder may only utilize a ~~spare~~temporary for-hire vehicle which has been duly inspected by an MTS inspector and approved prior to use. The permit holder must immediately inform an MTS inspector when a ~~spare~~temporary for-hire vehicle is in use and the location of the disabled vehicle. The ~~spare~~temporary vehicle will be issued a "~~spare~~temporary vehicle" sticker which must be affixed to the left rear portion of the for-hire vehicle for which it is approved, in plain view from the rear of the for-hire vehicle. The permit holder may utilize one (1) ~~spare~~temporary for-hire vehicle for a period not to exceed thirty (30) calendar days from the date of issuance. This subsection shall not be construed, nor deemed to replace, those provisions in this Ordinance which apply to permanent replacement of a for-hire vehicle.

(l) The ~~medallion~~Permit Number issued to the permit holder must be affixed by an MTS inspector on the for-hire vehicle for which the permit is approved in plain view from the rear of the for-hire vehicle. The permit holder must immediately report the loss, destruction, or defacing of a ~~medallion~~Permit Number to the Chief Executive Officer. Except as provided in Subsection (k), it shall be unlawful to operate a for-hire vehicle without the ~~medallion~~Permit Number affixed and visible.

(m) There shall be displayed in the passenger compartment of each for-hire vehicle between the sun visors, in full view of the passengers in the front and rear seats, a card not less than ~~ten (10~~standard letter size eleven (11) inches wide by ~~six (6~~eight and half (8 1/2) inches high in size. Posted on this card, utilizing "Universe" font in black ink on white background, shall be:

1) The first line of the card, 3/4 inch in height, shall say one of the following according to permit type: TAXICAB, SIGHTSEEING, CHARTER, NONEMERGENCY, LOW-SPEED VEHICLE, OR JITNEY LOST AND FOUND.

2) Below this, the card shall include the ~~vehicle medallion number~~Permit Number in three-inch numerals.

3) Below the ~~medallion number~~Permit Number, the name, address, and phone number of the MTS For-Hire Vehicle Administration and the permit holder and/or permit holder trade name shall be printed, 1/4-inch in height. If a taxicab, the name, phone number and email of the dispatch service shall also be included.

4) Without approval from MTS, no other signs, markings, lettering, decals, or any type of information shall be displayed within ~~18 inches around~~ the ~~card.~~vehicle

(n) Advertisements, whether displayed on the inside or outside of the vehicle, shall be posted in accordance with MTS Board Policy No. 21, Revenue-Generating Display Advertising, Concessions, and Merchandise, any guidelines developed by the Chief Executive Officer, and the provisions of this Ordinance. Advertisements shall not be displayed without prior approval from MTS.

(o) The driver of each for-hire vehicle ~~may either~~must carry~~: a map of the City or County, published within the past two (2) years; or an~~ electronic device equipped with a GPS enabled map, which shall be displayed to any passenger upon request.

(p) The maximum rates of fare charged for for-hire vehicle services shall be clearly and conspicuously displayed in the passenger compartment, unless if a taxicab which shall comply with Section 2.2(d) of this Ordinance.

(q) Each for-hire vehicle ~~licensed~~permitted to operate in the City or County shall have located on the passenger side dashboard area a driver identification card provided by the ~~County of San Diego~~ Sheriff or provide upon a request a valid VDDP driver certificate with a commercial driver's license. The driver identification card shall have no alterations or information covered. The driver identification card shall be visible to passengers, peace officers and MTS inspectors so they can easily view the driver identification card from either inside or outside the vehicle. ~~The driver identification card issued by the Sheriff shall bear the following information:~~

~~(1) The number of the license of the driver;~~

~~(2) The name and business address of the driver;~~

~~(3) The name of the owner of the vehicle; and~~

~~(4) A small photograph of the driver.~~

(r) Each for-hire vehicle shall be equipped with a rearview mirror affixed to the right side of the vehicle, as an addition to those rearview mirrors otherwise required by the California Vehicle Code.

(s) The driver shall offer ~~each~~the passenger ~~a~~the option of an electronic or printed receipt upon payment of the fare. The receipt shall accurately show the date, the amount of the fare, the driver's name and ID number, the taxicab number, the company (DBA) name, and the dispatch service name with phone number if a taxicab.

(t) All disputes to fare shall be determined by the peace officer or MTS inspector most readily available where the dispute is had. It shall be unlawful for any person to fail or refuse to comply with such determination by the peace officer or MTS inspector.

(u) It is unlawful for any person to refuse to pay the lawful fare of a for-hire vehicle after employing or hiring the same.

(v) The driver of any for-hire vehicle shall promptly obey all lawful orders or instructions of any peace officer, fire fighter, or MTS inspector.

(w) No driver of any for-hire vehicle shall transport any greater number of persons, including the driver, than the manufacturer's rated seating capacity for the vehicle.

~~(x) It shall be unlawful for any person to solicit business for a for-hire vehicle by making a contract or agreement with any owner of any hotel, apartment house, motel, inn, rental units, restaurant, or bar, or with the agent or employees of such owner, by which the owner, agent or employee receives any type of payment or commission for recommending or directing any passenger to a specific for-hire vehicle or company. It shall be unlawful for any permit holder, association, or driver to have or make a contract or agreement with any owner of any hotel, apartment house, motel, inn, rental units, restaurant, or bar, or with the agents or employees of such owner, by which the permit holder, association or driver receives any type of payment or commission for recommending or directing any passenger to an establishment operated by a specific owner.~~

~~(y~~(x) The driver of a for-hire vehicle shall wear, in a manner clearly visible on their person, ~~an~~a driver identification card ~~approved~~issued by the ~~Chief Executive Officer~~Sheriff.

(~~z~~y) The Board specifically finds that the dress, grooming, and conduct of for-hire vehicle drivers affect the public health and safety, particularly as it relates to visitors and the tourist industry. Therefore, while driving or operating a for-hire vehicle, drivers shall be hygienically clean, well-groomed, and neat and suitably dressed. Violations of this subsection are administrative in nature and shall not be the subject of criminal prosecution.

(1) The term "hygienically clean" shall refer to that state of personal hygiene, body cleanliness, and absence of offensive body odor normally associated with bathing or showering on a regular basis.

(2) The term "well-groomed" shall mean that, that scalp or facial hair shall be combed or brushed and that all clothing is clean, free from soil, grease and dirt, and without unrepaired rips or tears.

(3) The term "neat and suitably dressed" shall be interpreted to mean that: driver is wearing appropriate clothing to operate a for-hire vehicle; ~~-~~drivers shall wear shoes; driver cannot wear as an outer garment any of the following:~~-~~ undershirt or underwear, tank tops, body shirts (see-through mesh), swim wear, jogging or warm-up suits or sweatshirts or similar attire, jogging or bathing shorts or trunks, or sandals; and trouser-type shorts that are no shorter than four inches above the center of the kneecap are permissible.

~~(aa) For-hire vehicles shall comply with the California Vehicle Code, e.g., not impede traffic, and, where applicable, not operate on streets where posted speed limits are above 35 miles per hour.~~

(z) For-hire vehicle drivers, including taxicab, shall not load or unload passengers in traffic lanes.

(~~bb~~aa) Smoking is not permitted at any time inside a MTS-permitted vehicle.

(~~cc~~bb) A driver, permit holder or dispatch service organization shall not prejudice, disadvantage, or require a different rate or provide different service to a person because of race, national origin, religion, color, ancestry, physical disability, medical condition, occupation, marital status or change in marital status, sex or any characteristic listed or defined in Section 11135 of the Government Code.

(~~dd~~cc) A driver shall not use rude or abusive language toward a passenger(s) or conduct any physical action that a reasonable person would construe as threatening or intimidating.

(~~ee~~dd) A driver may refuse a fare if it is readily apparent that the prospective or actual fare is a hazard to the driver or operator. A driver is not obligated to transport any person who is verbally or otherwise abusive to the driver. Such incidents shall also be noted on the trip log and notification shall be immediately sent to the dispatch service organization, if a taxicab, which shall record the incident and keep the record for the minimum of 6 months.

(~~ff~~ee) A driver may decline to accept a taxicab trip that is Electronically Booked, so long as all other requirements of Section 1.8 are followed.

(~~gg~~ff) A driver shall not refuse or discourage a prospective or actual fare based upon trip length within City or County. A vehicle designated as an LSV, sightseeing or jitney may refuse a prospective or actual fare if the trip distance is outside allowed areas of operations.

~~(hh~~ (gg) A driver shall not refuse or discourage a prospective or actual fare based upon method of payment. Driver shall not refuse payments by credit card~~.~~ or contactless credit card payment methods

(~~ii~~gg) A ~~failure to promptly dispatch (within the standards required by Sections 2.6(a)(1), (2), and (3) of this Ordinance), or any action by a~~ driver ~~of any taxicab or LSV to~~shall not refuse or discourage a prospective or actual fare based upon trip destination. This requirement does not apply if:

(1) The trip destination requires access to private property (e.g. airport operator) which the vehicle does not maintain the necessary authorizations to enter, so long as proper prior notice is provided to the prospective passenger by the driver or if trip is dispatched or electronically booked, then by the dispatch service.

(hh) A driver shall not refuse or discourage a prospective or actual fare based on trip purpose (e.g. transport ~~foodstuffs~~food or who must meet a medical appointment).

(~~jj~~ii) No driver shall stop, park, or otherwise leave standing any MTS permitted vehicle within fifteen (15) feet of any fire plug ~~except as modified in Section 2.5 of this Ordinance~~.

(~~kk~~jj) No driver shall stop, park or otherwise leave standing any MTS permitted vehicle in a disabled parking zone except as authorized per California Vehicle Code section 22507.8.

(~~ll~~kk) If a taxicab, proof that vehicle(s) meet California Air Resources Board criteria for zero emissions/low emissions.

(Section 1.8 amended 6/18/2026)
(Section 1.8 amended 3/14/2024)
(Section 1.8 amended 12/8/2022)
(Section 1.8 amended 1/20/2022)
(Section 1.8 amended 11/12/2020)
(Section 1.8 amended 10/10/2019)
(Section 1.8 amended 11/8/2018, effective 1/1/2019)
(Section 1.8 amended 12/14/2017)
(Section 1.8 amended 10/13/2016)
(Section 1.8 amended 5/12/2016)
(Section 1.8 amended 2/12/2015)
(Section 1.8 amended 8/7/2003)
(Section 1.8 amended 11/14/2002)
(Section 1.8 amended 9/24/1998)
(Section 1.8 amended 2/13/1997)
(Section 1.8 amended 6/24/1993)

Section 1.9 - Public Liability

(a) It shall be unlawful to operate a for-hire vehicle unless the permit holder establishes and maintains in effect one of the forms of financial responsibility specified in this section.

(1) This requirement may be met by maintaining a valid policy of insurance executed and delivered by a company authorized to carry on an insurance business, the financial responsibility of which company has been approved by the Chief Executive Officer. The terms of the policy shall provide that the insurance company assumes financial responsibility for injuries to persons or property caused by the operation of the for-hire vehicle in an amount determined by the Chief Executive Officer.

(2) The permit holder may also meet this requirement by obtaining a certificate of self-insurance for a specified amount approved by the Board and pursuant to the applicable provisions of the California Vehicle Code.

(b) A valid proof of insurance issued by the company providing the insurance policy required under Subsection (a) (1) of this section shall be filed with and approved by the Chief Executive Officer. This certificate shall provide that MTS is a named certificate holder and shall be placed in each vehicle, per California Vehicle Code Section 16020. It shall also provide that the insurer will notify MTS of any cancellation and that the cancellation notice be received at least thirty (30) days prior to cancellation of the policy. The certificate shall also state:

(1) The full name of the insurer;
(2) The name and address of the insured;
(3) The insurance policy number;
(4) The type and limits of coverage;
(5) The specific vehicle(s) insured;
(6) The effective dates of the certificate; and
(7) The certificate issue date.

(Section 1.9 amended 11/12/2020)
(Section 1.9 amended 9/17/2015)
(Section 1.9 amended 11/14/2002)

Section 1.10 ~~- Financial~~ Ownership and Operating Records: Reporting Requirements

(a) Every person engaged in the business of operating a for-hire vehicle within the City under a permit granted by the Chief Executive Officer shall maintain:

~~(1) Financial records, including but not limited to the current executed taxicab driver lease agreement that includes all aspects of the business relationship between the permit holder and the lessee, and written receipts of all payments from lessee in accordance with good accounting practices;~~

(1) Reasonable financial responsibility to conduct for-hire vehicle operations in accordance with the requirements of this Ordinance;

(2) Ownership records; and

(3) Operating records in a form, and at intervals, which shall be determined from time to time by the Chief Executive Officer.

(b) Ownership and operating records shall be made available to the Chief Executive Officer upon demand at any reasonable time. The permit holder shall retain operating records for a minimum of six (6) months from the date the records are created.

(c) For purposes of this section, ownership records shall include, but are not limited to, the following:

(1) Copies of the Articles of Incorporation as filed;

(2) Records identifying all corporate officers and members of the corporation's Board of Directors. A corporation shall report any change in corporate officers ~~or members of its Board of Directors~~ to MTS within ten (10) days of the effective date.

(3) The registration cards issued by the State of California Department of Motor Vehicles to the vehicle owner for all for-hire vehicles operated under the authority of an MTS for-hire vehicle permit. Valid proof of registration shall be maintained in the vehicle at all times.

(d) For purposes of this section, operating records shall include, but are not limited to, the following:

~~(1) Typed or written dispatch records for taxicab companies which operate their own dispatch service;~~

~~(2) Any logs~~(1) Any logs written or electronic which a for-hire vehicle driver keeps describing the trips carried by a for-hire vehicle other than a taxicab;

(~~3~~2) Copies of the daily trip log required by taxicab or LSV drivers under Section 2.4 (o); and

(~~4~~3) Any other similar records.

(e) As a condition of permit renewal, upon permit renewal every permit holder shall file with the Chief Executive Officer a signed statement which shall report and attest to the accuracy of the following information:

(1) The individual name(s), business name, business ~~mailing~~ address, e-mail address, and telephone number of the permit holder(s);

(2) The name and address of all legal and registered owner(s) of the for-hire vehicle(s);

~~(3) The name and address of each person with a financial interest in the business which operates the vehicle(s);~~

~~(4~~(3) The year, manufacturer, model, vehicle identification number, license plate, and ~~medallion number~~Permit Number affixed to the permitted vehicle(s); and

(~~5~~4) Proof of enrollment and names of any and all drivers enrolled in the DMV driver pull-notice program pursuant to Section 1.8(d) of this Ordinance.

(f) ~~If the permit holder is an individual, the~~The permit holder must ~~email, mail or appear in person in the offices of MTS to file the~~submit the annual statement~~; if the permit holder is a partnership, one of the partners must email, mail or appear in person in the offices of MTS to file the statement; if the permit holder is a corporation or LLC, an officer of the corporation, or a member of the LLC, authorized to represent the company, must email, mail or appear in person in the offices of MTS to file the statement. If email or mail is used, the email address or mailing address used~~ as required by the ~~permit holder must be an email address or mailing address that is on file with the~~ Chief Executive Officer or designee. Failure to produce the statement may result in permit suspension or denial of permit renewal.

(Section 1.10 amended 6/18/2026)
(Section 1.10 amended 3/14/2024)
(Section 1.10 amended 12/8/2022)
(Section 1.10 amended 11/12/2020)
(Section 1.10 amended 11/8/2018, effective 1/1/2019)
(Section 1.10 amended 5/12/2016)
(Section 1.10 amended 2/12/2015)
(Section 1.10 amended 8/7/2003)
(Section 1.10 amended 11/14/2002)
(Section 1.10 amended 6/24/1993)

Section 1.11 - Destruction, Permanent Replacement, Retirement or Inactive Status of For-Hire Vehicles

(a) Whenever a for-hire vehicle is destroyed, rendered permanently inoperative, is sold, or the permit holder is no longer the owner of the for-hire vehicle, the permit holder shall notify the Chief Executive Officer in writing within forty-eight (48) hours.

(b) If a taxicab permit holder plans to change where it is Substantially Located, the permit holder shall notify the Chief Executive Officer and the new jurisdiction in which it will become Substantially Located within six (6) months or as soon as practicable prior to making that change.

(c) A permit holder may place a for-hire vehicle under inactive status after written permission is obtained from the Chief Executive Officer. The following guidelines are to be used in granting permission for a for-hire vehicle to be placed and kept on inactive status:

(1) No laps in payment of annual regulatory fees during any time of inactive status;

(2) Permit must be in good standing (e.g. no pending disciplinary or enforcement action); and

(3) Annual statement must be filed in accordance with Section 1.10(e).

(d) At any time a permit holder may bring a for-hire vehicle under inactive status back into service after written permission is obtained from the Chief Executive Officer. The following guidelines are to be used in granting permission to return a for hire vehicle under inactive status back to service:

(1) Permit holder must notify Chief Executive Officer in writing of their intent to place their vehicle back into service;

(2) Permit holder must show proof of a valid vehicle insurance policy as required by Section 1.9;

(3) Permit holder must show proof of current vehicle registration;

(4) Permit holder must show proof of current subscription to a dispatch service organization, if a taxicab; and

(5) Vehicle must pass MTS required inspection.

(e) The Chief Executive Officer shall, as a matter of owner right, allow the replacement of a vehicle which is destroyed, rendered inoperative, or sold ~~or transferred~~, provided that the permit holder has complied with, and the for-hire vehicle is in conformance with, all applicable provisions of this Ordinance. An owner must remove the markings from the vehicle that indicate it is a taxicab or LSV before the owner disposes of it.

(Section 1.11 amended 6/18/2026)
(Section 1.11 amended 2/14/2019)
(Section 1.11 amended 10/13/2016)
(Section 1.11 amended 8/7/2003)
(Section 1.11 amended 11/14/2002)
(Section 1.11 amended 2/13/1997)

Section 1.12 - Driver's Identification Cards

(a) No person shall drive or operate any for-hire vehicle under the authority of a permit granted under this Ordinance unless such person: displays a valid driver's identification card obtained annually through the Sheriff ~~of the County of San Diego~~; or provides upon request a VDDP driver certificate with a commercial driver's license.

(b) No permit holder shall employ as a for-hire vehicle driver or operator any person who has not obtained a for-hire vehicle driver's identification card through the Sheriff ~~of the County of San Diego~~ or VDDP driver certificate with a commercial driver's license.

(c) No permit holder shall employ as a driver or operator any person whose privilege to operate a for-hire vehicle within the City has expired, or has been revoked, denied ~~or~~, suspended or prohibited.

(d) ~~A driver may drive for more than one permit holder.~~ The driver must~~, however,~~ have on file with and accepted by the Sheriff ~~of the County of San Diego,~~ a separate application on forms provided by the Sheriff, for each permit holder with whom ~~he has~~they have a current driving agreement. ~~A driver may have on file with the Sheriff a maximum of four (4) such applications at any one time. It shall be unlawful for a driver to accept or solicit passengers for hire in the City or County while operating the taxicab or LSV of any permit holder for whom the driver does not have such an application on file with the Sheriff.~~

(e) No person shall drive or operate any for-hire vehicle, under the authority of a permit granted under this Ordinance unless such person has successfully completed an MTS-approved driver safety training course concerning driver safety rules and regulations, map reading, crime prevention, courtesy and professionalism, and compliance with the ADA. As determined by the Chief Executive Officer, a corresponding qualification examination may be required.

(f) No person ~~who has received a notice of prohibition pursuant to Section 1.14, or~~ whose privilege to operate a for-hire vehicle within the City has expired, or has been suspended, revoked or denied by the Sheriff, or California Highway Patrol~~, or the Chief Executive Officer~~ shall drive or operate a for-hire vehicle within the City.

~~(g) No for-hire vehicle driver's identification card shall be issued or renewed by the Sheriff to any of the following persons:~~

~~(1) Any person under the age of eighteen (18) years.~~

~~(2) Any person who has been convicted of a felony involving a crime of force or violence against any person, or the theft of property, unless five (5) years have elapsed since their discharge from a penal institution or satisfactory completion of probation for such conviction during which period of time their record is good.~~

~~(3) Any person who has been convicted of assault, battery, resisting arrest, solicitation of prostitution, any infraction, misdemeanor, or felony involving force and violence, or any crime reasonably and rationally related to the paratransit industry or any similar business operation which bears upon the integrity or ability of the driver to operate a for-hire vehicle business and transport passengers, unless five (5) years shall have elapsed from the date of discharge from a penal institution or the satisfactory completion of probation for such conviction.~~

~~(4) Any person who, within the five (5) years immediately preceding the processing of the application, has been convicted of or held by any final administrative determination to have been in violation of any statute, ordinance, or regulation reasonably and rationally related to the for-hire vehicle industry or any similar business operation which would have authorized the suspension or revocation of the driver's identification card in accordance with Section 1.14 of this Ordinance.~~

~~(5) Any person who is required to register as a sex offender pursuant to the California Penal Code.~~

~~(6) Any person who has provided false information of a material fact in their application within the past five (5) years.~~

~~(7) No person shall obtain or renew a driver's identification card unless such person has successfully completed a driver safety training course approved by the Chief Executive Officer.~~

~~(8) When a driver permanently no longer drives for an MTS For-Hire Vehicle Administration permit holder, the permit holder shall report this to the Sheriff's Department within ten (10) calendar days.~~

~~(h) The Sheriff is authorized to issue temporary for-hire vehicle driver identification cards pending the approval or denial of an application for a regular for-hire vehicle driver identification card. No temporary for-hire vehicle driver identification card shall be issued without the satisfactory completion of a local law enforcement agency record check of the applicant. Any temporary identification card so issued shall be valid for a period not to exceed ninety (90) days or until the date of approval or denial of the application for a regular for-hire vehicle driver identification card, whichever shall occur first. The issuance of a temporary identification card hereunder shall not authorize the operation of a for-hire vehicle following the denial of the application while pending the resolution of any appeal otherwise provided for in Section 1.16 of this Ordinance. The Sheriff or the Chief Executive Officer shall establish nonrefundable filing fees to defray the costs of processing regular and temporary driver identification cards.~~

(Section 1.2 amended 6/18/2026)
(Section 1.12 amended 12/8/2022)
(Section 1.12 amended 1/20/2022)
(Section 1.12 amended 11/12/2020)
(Section 1.12 amended 10/10/2019)
(Section 1.12 amended 11/8/2018, effective 1/1/2019)
(Section 1.12 amended 12/14/2017)
(Section 1.12 amended 5/12/2016)
(Section 1.12 amended 11/15/2012)
(Section 1.12 amended 8/7/2003)
(Section 1.12 amended 11/14/2002)
(Section 1.12 amended 9/24/1998)
(Section 1.12 amended 10/30/1997)
(Section 1.12 amended 11/9/1995)

Section 1.13 - Suspension and Revocation of Permit

(a) Permits may be suspended or revoked by the Chief Executive Officer at any time in case:

(1) The Chief Executive Officer finds the permit holder's past record to be unsatisfactory with respect to satisfying the provisions of this Ordinance.

(2) The permit holder fails to comply with the applicable provisions of this Ordinance.

(3) The drivers of the for-hire vehicle or vehicles fail to act in accordance with those provisions of this Ordinance which govern driver actions. The permit holder shall have strict liability in this regard; however, this provision shall not restrict the Chief Executive Officer's ability to penalize a driver for violations of those provisions of this Ordinance which govern driver actions.

(4) The owner ceases to operate a for hire vehicle without having obtained written permission from the Chief Executive Officer.

(5) The permit holder is found to be operating a for-hire vehicle that is under inactive status.

(6) The ~~LSV or a~~ taxicab are operated at a rate of fare greater than the maximum rates of ~~-~~fare authorized by the Chief Executive Officer or posted on the taxicab ~~or LSV pursuant to Section 2.2 (a) of this Ordinance~~, unless the taxicab trip is Electronically Booked.

(7) The permit holder fails to begin operating the for-hire vehicle for which the permit is first approved within ~~ninety (90~~sixty (60) days after the approval date.

(8) The permit holder has been convicted of assault, battery, resisting arrest, solicitation of prostitution, any misdemeanor or felony involving force and violence, or any crime reasonably and rationally related to the paratransit industry or any similar business operation which bears upon the integrity or ability of the applicant or permit holder to operate a for-hire vehicle business and transport passengers, unless the date of discharge from a penal institution or the satisfactory completion of parole or probation for such conviction has elapsed.

(9) The permit holder has been convicted of a crime that would require a person to register as a sex offender under the California Penal Code. For purposes of this section, a plea or verdict of guilty, a finding of guilt by a court, a plea of nolo contendere or a forfeiture of bail shall be considered a conviction.

(b) A permit holder shall be notified in writing within 10 working days when a credible complaint has been filed with the Chief Executive Officer by a member of the public where such complaint involves the permit holder, the driver of the permitted for-hire vehicle, or the dispatch service to which the permit holder is subscribed. ~~As directed by the Chief Executive Officer, the permit holder shall investigate the complaint and report in writing to the Chief Executive Officer within 30 days the result of the investigation and any corrective action taken or proposed. Where the complainant has agreed to the sharing of their identity, the results of the investigation, findings, and actions shall be communicated to the complainant.~~

(c) ~~In the event the~~The Chief Executive Officer ~~finds a permit holder has failed to responsibly respond to notification of complaints~~ or ~~to initiate corrective action, the Chief Executive Officer~~designee shall investigate the complaint and if warranted, issue a notice of proposed adverse action to the permit holder. If the ~~circumstances~~subject of the complaint ~~or subsequent investigation so warrant~~is a lease driver, the Chief Executive Officer may ~~issue a notice of adverse action to a driver independently of or in conjunction with any adverse action proposed to the permit holder~~request the Sheriff to take disciplinary action. The Chief Executive Officer shall refer to the Administrative Penalty Guidelines in determining a proposed adverse action.

(d) The permit holder ~~or driver~~ in receipt of a notice of proposed adverse action shall be given the opportunity to appear for an informal hearing before the Chief Executive Officer or

designated representative. Failure to appear will constitute waiver of the hearing. Following the hearing or waiver thereof, the Chief Executive Officer shall issue the notice of adverse action if justified by the facts. If the Chief Executive Officer determines that the performance of the permit holder or driver involves criminal activity or constitutes a serious degradation of the public safety, convenience, or necessity, a notice of adverse action may be issued and the action effected without hearing.

(e) Upon a finding by the Chief Executive Officer that a permit holder falls within the provisions of this section, the permit holder or driver shall be notified that their permit has been subjected to an adverse action and that the matter is such that the action may be appealed. In lieu of an action provided for in the Administrative Penalty Guidelines, the Chief Executive Officer may impose a fine or a fine and a period of suspension for any violation(s) of this Ordinance.

(Section 1.13 amended 6/18/2026)
(Section 1.13 amended 3/14/2024)
(Section 1.13 amended 12/8/2022)
(Section 1.13 amended 1/20/2022)
(Section 1.13 amended 2/14/2019)
(Section 1.13 amended 11/8/2018, effective 1/1/2019)
(Section 1.13 amended 12/14/2017)
(Section 1.13 amended 10/13/2016)
(Section 1.13 amended 5/12/2016)
(Section 1.13 amended 8/7/2003)
(Section 1.13 amended 11/14/2002)
(Section 1.13 amended 6/24/1999)

Section 1.14 - ~~Suspension and Revocation~~BLANK

The text of ~~Driver's Identification Cards~~Section 1.14 is deleted in its entirety effective June 18, 2026.

~~(a) Driver's identification cards issued by the Sheriff may be suspended or revoked by the Chief Executive Officer at any time in case:~~

~~(1) The Chief Executive Officer finds the driver's past record to be unsatisfactory with respect to satisfying the provisions of this Ordinance; or~~

~~(2) The driver fails to comply with the applicable provisions of this Ordinance; or~~

~~(3) Circumstances furnish grounds for the denial, suspension, revocation or refusal to renew the driver's identification card by the Sheriff under the terms of the applicable Ordinance of the County of San Diego; or~~

~~(4) Their California Driver's License is revoked or suspended; or~~

~~(5) The driver is convicted of reckless driving or driving while under the influence of intoxicating liquors and/or narcotics; or~~

~~(6) The driver has been convicted of assault, battery, resisting arrest, solicitation of prostitution, any crime involving force and violence, or reasonably and rationally is related to the ability or integrity of the driver to operate a for-hire vehicle or transport passengers; or~~

~~(7) The driver has ever been convicted of a crime that requires registration under the California Penal Code as a sex offender.~~

~~(b) For purposes of Subsections (a) (1) through (a) (6) of this section, a plea of nolo contendere, or a forfeiture of bail shall be considered a conviction if it occurred within the five (5) years immediately preceding the date of application for a permit or identification card.~~

~~(c) Notwithstanding a driver's possession of a valid taxicab or LSV driver identification card, the Chief Executive Officer may deny, suspend, revoke, or refuse to renew the driver's privilege to operate a for-hire vehicle in the City if the driver falls within the provisions of this section. The Chief Executive Officer shall send a notice of prohibition the date postmarked to operate a taxicab or LSV to any holder of a Sheriff's driver identification card who is ineligible under Subsection (a) to operate a for- hire vehicle within the City limits. The notice of prohibition shall be appealable in accordance with Section 1.16.~~

(Section 1.14 deleted 6/18/2026)
(Section 1.14 amended 1/20/2022)
(Section 1.14 amended 10/10/2019)
(Section 1.14 amended 5/12/2016)
(Section 1.14 amended 8/7/2003)
(Section 1.14 amended 11/14/2002)
(Section 1.14 amended 6/24/1999)

Section 1.15 - Surrender of ~~Medallion~~Permit

~~(a)~~ When a permit has been suspended or revoked, the operation of any for-hire vehicle authorized by such permit shall cease, and its ~~medallion~~Permit surrendered immediately to the Chief Executive Officer.

(Section 1.15 amended 6/18/2026)
(Section 1.15 amended 11/14/2002)

Section 1.16 - Right of Administrative Appeal from Denial, Suspension or Revocation of Permit or Related Adverse Action
~~Driver's Identification Card or Related Adverse Action~~

(a) The permit holder~~ or driver~~ shall be notified that they may file with the Chief Executive Officer a written administrative appeal ten (10) days after delivery of the notice of revocation or suspension, or the denial of a ~~license,~~ permit, ~~or driver's identification card issued by the Sheriff, the~~, or notice of prohibition to operate or the imposition of a fine. The permit holder~~ or driver~~ shall set forth in the appeal the reasons why such action is not proper.

(b) If no administrative appeal is filed within the proper time, the permit~~ or driver's identification card issued by the Sheriff~~ shall be considered revoked, suspended or denied, and shall be surrendered, the fine be imposed, as applicable, or the notice of prohibition to operate take effect.

(c) Except as provided in Subsection (d), once an administrative appeal is filed, the revocation or suspension of the permit or ~~driver's identification card issued by the Sheriff,~~ the effect of the notice of prohibition to operate, or the imposition of the fine, shall be stayed pending the final determination of the administrative appeal.

(d) If, in the Chief Executive Officer's opinion, the continued operation of a for-hire vehicle ~~or possession of a driver's identification card issued by the Sheriff~~ represents an unsafe condition for any passenger or pedestrian, the revocation or suspension of the related permit, ~~driver's identification card~~, or the effect of any notice of prohibition to operate shall not be stayed. A revocation or suspension of a permit imposed for failure to comply with Section 1.8 (g) or Section 1.9 is rebuttably presumed to represent an unsafe condition pending the determination of the appeal or the correction of the violation, whichever shall occur first. Notwithstanding, no ~~medallion~~Permit Number shall be reaffixed to a vehicle until the violation under Sections 1.8 (g) or 1.9 has been corrected.

(Section 1.16 amended 6/18/2026)
(Section 1.16 amended 1/20/2022)
(Section 1.16 amended 11/12/2020)
(Section 1.16 amended 10/10/2019)
(Section 1.16 amended 8/7/2003)
(Section 1.16 amended 11/14/2002)

Section 1.17 - Procedure Upon Administrative Appeal

(a) When an appeal is filed, the Chief Executive Officer shall review the appeal, and based on additional information provided therein, may revise the findings and penalty; in accordance with the additional information provided; or cause the appeal to be assigned to a Hearing Officer, who shall expeditiously schedule the hearing ~~before him/her~~.

(1) The Chief Executive Officer shall use California Department of General Services, Office of Administrative Hearings Administrative Law Judges as Hearing Officers. The assignment of Administrative Law Judges as Hearing Officers shall be determined by the California Department of General Services, Office of Administrative Hearings.

(2) The Hearing Officer shall be a member of the California State Bar and shall not be an MTS employee.

(b) The appellant and the Chief Executive Officer or designate shall each have the right to appear in person and be represented by legal counsel, to receive notice, to present evidence, to call and cross-examine witnesses under oath, and to present argument.

(c) An appellant may select an individual to interpret for them. MTS will not pay any costs or be held responsible for any aspect of the interpreter's ability to accurately interpret the hearing.

(1) The Hearing Officer shall have the power to compel attendance of witnesses and documents by subpoena, in accordance with state law.

(2) The formal rules of evidence need not apply, and any relevant evidence that is the sort of evidence upon which responsible persons are accustomed to rely in the conduct of serious affairs shall be admissible. Hearsay evidence may be considered by the Hearing Officer, but no findings may be based solely on hearsay evidence unless supported or corroborated by other relevant and competent evidence. The formal exceptions to the hearsay rule shall apply.

(d) The Chief Executive Officer shall promulgate supplementary rules and procedures for the conduct of the hearing, the forms of notice and proceedings, and the preparation and submission of the record.

(e) The decision of the Hearing Officer shall be the final administrative remedy and shall be binding upon the parties to the appeal.

(f) If the Hearing Officer decides to suspend or revoke a permit ~~or driver's identification card~~, the appellant shall immediately surrender the ~~medallion or driver's identification card~~Permit to the Chief Executive Officer.

(Section 1.17 amended 6/18/2026)
(Section 1.17 amended 5/12/2016)
(Section 1.17 amended 11/15/2012)

Section 1.18 - Exceptions to Provisions

(a) The provisions of this Ordinance do not apply to:

(1) a vehicle properly licensed under the jurisdiction of the California Public Utilities Commission (CPUC) unless such vehicle also provides transportation services regulated by MTS under this Ordinance;

(2) public transit vehicles owned, operated, or contracted for by MTS and operators and drivers of such vehicles;

(3) a vehicle properly licensed by the State or County as an ambulance, and its driver if properly licensed by the California Highway Patrol pursuant to Vehicle Code section 12527 (i.e. for-hire driver for an ambulance); or

(4) a vehicle properly regulated by the California Highway Patrol pursuant to Vehicle Code sections 34500 et seq. (i.e. bus, schoolbuses, school pupil activity buses, or youth buses), and its driver if properly licensed by the California Highway Patrol pursuant to Vehicle Code sections 12523.6 (i.e. for-hire driver of vehicles for developmentally disabled) or 12517.3 (i.e. for-hire driver for a schoolbus, school pupil activity bus, or youth bus).

(b) For compliance purposes, MTS inspectors may inspect all vehicles listed in Section 1.18 (a) to ensure they are not exceeding the authority granted by their license or operating as unlicensed private- hire transportation provider.

(Section 1.18 amended 10/10/2019)
(Section 1.18 amended 12/14/2017)
(Section 1.18 amended 5/12/2016)
(Section 1.18 amended 11/15/2012)
(Section renumbered to 1.18 9/24/1998)
(Section 1.17 amended 1/12/1995)
(Section 1.17 amended 6/24/1993)

Section 1.19 - Chief Executive Officer's Authority to Adopt Rules and Promulgate a Schedule of Fines

~~(a)~~ Except where Board action is specifically required in this Ordinance, the Chief Executive Officer may adopt any rules and regulations reasonable and necessary to implement the provisions of this Ordinance. The Chief Executive Officer shall promulgate a schedule of administrative fines and penalties for violations of this Ordinance in lieu of the revocation or suspension of a permit ~~or identification card issued by the Sheriff~~, a copy of which schedule shall be ~~filed with~~available on the ~~Clerk of the Board~~MTS website.

(Section 1.19 amended 6/18/2026)
(Section 1.19 amended 10/10/2019)
(Section renumbered to 1.19 9/24/1998)

Section 1.20 - Americans with Disabilities Act

(a) Permit holders, vehicles, and drivers are required to comply with the requirements of the federal Americans with Disabilities Act (ADA), and ADA regulations are hereby incorporated into MTS Ordinance No. 11 by reference. A violation of ADA requirements is a violation of this Ordinance and subject to a fine or suspension or revocation or a combination.

(Section renumbered to 1.20 9/24/1998)
(Section 1.19(a) was added 4/10/1997)

SECTION 2.0 - TAXICABS AND/OR LSVs

Section 2.1 - Types of Service

(a) A taxicab or LSV is authorized to provide exclusive ride and group ride service.

(Section 2.0 and 2.1 amended 8/7/2003)

Section 2.2 - Rates of Fare

(a) After a noticed and open public hearing of the Taxicab Advisory Committee, MTS shall establish a maximum rate of fare for exclusive ride and group ride hire of taxicabs ~~and/or LSVs~~. A permit holder may petition the Board for any desired change in the maximum taxicab ~~or LSV~~ rates for exclusive ride ~~and/or zone rates~~ and group ride hire.

(b) ~~Rates for trips originating at the airport may include~~For an ~~extra charge equal to the~~Airport Operator that charges Airport Access ~~Fee assessed against the individual taxicab operator by the San Diego County Regional Airport Authority. The extra may not be charged on any trip that does not originate at the airport or on any trip where the taxicab operator does not pay the fee to the San Diego County Regional Airport Authority. The~~ Fees to taxicabs, the extra charge may only be charged by the taxicab to the passenger by visually identifying the Airport Access Fee on the taxicab meter~~.~~ and adding it to the final fare at the end of the trip. A driver may not verbally request separate payment of the Airport Access Fee. All taxicabs utilizing the Airport Access Fee must have a decal, approved by the Chief Executive Officer and the County of San Diego Office of Weights and Measures. The decal shall identify and accurately describe the extra charge consistent with regulatory requirements.

(c) All taxicabs shall accept major credit cards including~~,~~ but not limited to, contactless payment methods, VISA, MasterCard, American Express, and Discover. Credit Card fees shall not be passed onto passengers.

(d) In accordance with Government Code Section 53075.5, the taxicab permit holder or taxicab driver shall disclose fares, fees or rates to the passenger. If providing trips booked through an online enabled application, internet website, or dispatch service, it may be disclosed by website, mobile telephone application or telephone dispatch requests. If providing trips through walkup rides or street hails, it may be disclosed on the exterior of the vehicle, internet enabled application, or be clearly visible in either print or electronic form inside the taxicab.

(1) If a trip was Electronically Booked, notice that maximum rates do not apply for trips Electronically Booked must be conspicuously posted wherever maximum rates of fare are disclosed or posted.

(e) It shall be unlawful for a permit holder or driver to operate any taxicab in the City or County, unless the vehicle is equipped with a Taximeter that meets the requirements of the State of California.

(1) If Hard Meter, each taxicab permit holder shall have the Taximeter set by properly licensed personnel for the rate that they will charge and have the Taximeter sealed and inspected.

(2) If Soft Meter, a certificate of approval must be provided by the California Department of Food and Agriculture Division of Measurement Standards or National Conference of Weights and Measures.

(3) The Taximeter shall calculate fares upon the basis of a combination of mileage traveled and time elapsed. When operative with respect to fare indication, the fare-indicating mechanism shall be actuated by the mileage mechanism whenever the vehicle is in motion at such a speed that the rate of mileage revenue equals or exceeds the time rate, and may be actuated by the time mechanism whenever the vehicle speed is less than this, and when the vehicle is not in motion.

(4) Waiting time shall include all time when a taxicab occupied or engaged by a passenger is not in motion or is traveling at a speed which is slow enough for the time rate to exceed the mileage rate. Waiting time will also include the time consumed while standing at the direction of the passenger or person who has engaged the taxicab.

(5) It shall be the duty of every permit holder operating a taxicab to keep the Taximeter in proper condition so that the Taximeter will, at all times, correctly and accurately indicate the charge for the distance traveled and waiting time. The Taximeter shall be at all times subject to the charge for the distance traveled and waiting time.

(6) The Taximeter shall be at all times subject to inspection by an MTS inspector or any peace officer. The MTS inspector or peace officer is hereby authorized at their instance or upon complaint of any person to investigate or cause to be investigated the Taximeter, and upon discovery of any inaccuracy in the Taximeter, or if the Taximeter is unsealed, to remove or cause to be removed the vehicle equipped with this taximeter from the streets of the City until the Taximeter has been correctly adjusted and sealed. Before being returned to service, the vehicle and Taximeter must be inspected and approved by the Chief Executive Officer.

(7) Any device repairperson who places into service, repairs, or recalibrates a Taximeter shall record the tire size and pressure of the drive wheels of that vehicle, as tested, on the repair person's sticker.

(8) It shall be the duty of the permit holder to ensure the proper device repair person's sticker is affixed to the Taximeter and to ensure the tires are the proper size.

(f) It shall be unlawful for any driver of a taxicab, while carrying exclusive or group ride passengers, to display the flag or device attached to the Taximeter in such a position as to denote that the vehicle is for hire, or is not employed, or to have the flag or other attached device in such a position as to prevent the Taximeter from operating. It shall be unlawful for any driver to throw the flag into a position which causes the Taximeter to record when the vehicle is not actually employed, or to fail to throw the flag or other device into non-recording position at the termination of each and every service.

(g) The Taximeter shall be so placed in the taxicab that the reading dial showing the amount of fare to be charged shall be well-lighted and easily readable by the passenger riding in such taxicab.

(h) It shall be unlawful for any permit holder and/or driver of a taxicab ~~or LSV~~ to demand of a passenger a charge for hire which is greater than the current maximum rate ~~approved by the Board~~, as per MTS Board Policy No. 34 and as established pursuant to Section 2.2 (a) or (b) of this Ordinance, unless the taxicab trip is Electronically Booked.

(i) It shall be unlawful for any permit holder and/or driver to demand of a passenger that is requesting a taxicab trip through a walkup, street hail or phone call to a dispatch service organization a charge for hire which is greater than the authorized maximum rate pursuant to Section 2.2 (a) or (b) of this Ordinance. It shall also be unlawful for any dispatch service organization, permit holder and/or driver to request or demand that a passenger requesting a taxicab trip through a walkup or street hail or phone call to a dispatch service organization to instead have the taxicab trip Electronically Booked.

(j) Nothing in this Ordinance shall preclude a dispatch service, permit holder, or driver from agreeing with prospective passenger(s) to a rate of fare which is equal to or less than the maximum rates of fare if the agreement is entered into in advance of the passenger(s) hiring the taxicab for the trip. To ensure the fare agreement is equal to or less than the maximum rates of fare, the taximeter shall remain in recording position until the termination of the trip.

(Section 2.2 amended 6/18/2026)
(Section 2.2 amended 3/14/2024)
(Section 2.2 amended 1/20/2022)
(Section 2.2 amended 12/12/2019)
(Section 2.2 amended 11/8/2018, effective 1/1/2019)
(Section 2.2 amended 12/14/2017)
(Section 2.2 amended 5/12/2016)
(Section 2.2(c)(2) amended 11/15/2012)
(Section 2.2(b) amended 4/19/2012)
(Section 2.2 amended 8/7/2003)
(Section 2.2 amended 5/8/2003)
(Section 2.2 amended 11/14/2002)
(Section 2.2 amended 6/24/1999)
(Section 2.2 amended 9/24/1998; Section 2.2c operative May 1, 1999)
(Section 2.2 amended 10/30/1997)
(Section 2.2 amended 4/10/1997)

Section 2.3 - Equipment and Specifications

(a) No taxicab shall be operated until the taximeter thereon has been inspected, tested, approved and sealed, if applicable, by an authorized representative of the State of California, and thereafter so maintained in a manner satisfactory to the Chief Executive Officer.

(b) Each taxicab may be equipped with a device which plainly indicates to a person outside the taxicab whether the taximeter is in operation or is not in operation.

(c) Mandatory Exterior Markings: The permit holder must display one of the following exterior markings schemes on each taxicab:

(1) Exterior Marking Scheme 1: The following must be displayed if in use of Exterior Marking Scheme 1:

(A) The permit holder's trade name shall be painted or permanently affixed in letters and numerals four (4) inches high all on one line on the upper third part of both rear doors or both rear quarter panels utilizing "Univers" or other Chief Executive Officer pre-approved font in any solid color lettering to produce maximum contrast adequately spaced for maximum readability. In the event the trade name does not fit on one line utilizing four (4) inch lettering, the trade name lettering must be as large as possible, up to four (4) inches in height, to enable the trade name to fit on one line.

(B) The ~~medallion number~~Permit Number shall be painted or permanently affixed, on both rear doors or both rear quarter panels, one (1) inch below the permit holder's trade name, six (6) inches high, utilizing "Univers" or other Chief Executive Officer pre-approved font in any solid color lettering to produce maximum contrast adequately spaced for maximum readability.

(2) Exterior Marking Scheme 2: The following must be displayed if in use of Exterior Marking Scheme 2:

(A) The permit holder's trade name shall be painted or permanently affixed in letters and numerals four (4) inches high all on one line on the upper third part of both front doors utilizing "Univers" or other Chief Executive Officer pre-approved font in any solid color lettering to produce maximum contrast adequately spaced for maximum readability. In the event the trade name does not fit on one line utilizing four (4) inch lettering, the trade name lettering must be as large as possible, up to four (4) inches in height, to enable the trade name to fit on one line.

(B) The ~~medallion number~~Permit Number shall be painted or permanently affixed, on both front doors, one (1) inch below the permit holder's trade name, six (6) inches high, utilizing "Univers" or other Chief Executive Officer pre-approved font in black or white lettering to produce maximum contrast adequately spaced for maximum readability.

(C) The permit holder's trade name and ~~medallion number~~Permit Number shall be painted or permanently affixed on the rear of the taxicab, four (4) inches high, utilizing "Univers" or other Chief Executive Officer pre-approved font in black or white lettering to produce maximum contrast adequately spaced for maximum readability. In the event the rear of the vehicle does not have four inches of vertical space for the trade name and ~~medallion number~~Permit Number, the rear lettering may be less than four inches, provided that it is easily readable from a distance of 50 feet.

(3) Exterior Marking Scheme 3: Shall only apply to taxicab vehicles with an unladen weight of 6,000 pounds or less. The following must be displayed if in use of Exterior Marking Scheme 3~~:~~:

(A) The permit holder's trade name shall be permanently affixed to the upper edge of the front and rear windshields and lower part of both left and right rear windows, three (3) inches high, utilizing "Univers" or other Chief Executive Officer pre-approved font in any solid color to produce maximum contrast adequately spaced for maximum readability.

(B) The ~~medallion number~~Permit Number shall be permanently affixed on the upper right side of the front windshield, upper left part of the rear windshield, and both right and left rear glass panels. The ~~Medallion number~~Permit Number shall be a minimum of (4) inches high utilizing "Univers" or other Chief Executive Officer pre-approved font any in any solid color to produce maximum contrast adequately spaced for maximum readability.

(d) Optional Exterior Vehicle Markings. The permit holder has the option of choosing to post any combination of the below-listed five options on their taxicab which must be posted only at the specific location and in the size noted.

(1) Trade Name Logo. If the permit holder chooses to display their trade name logo, the trade name logo shall be posted on the rear portion of both side rear quarter panels or bottom parts of the front or rear windshields farthest removed from the driver. The logo shall not exceed (6) six inches in diameter.

(2) Dispatch Service Provider. If the permit holder chooses to display the dispatch service provider name or logo, the dispatch service provider name or logo cannot utilize the words "cab" or taxi." The dispatch service provider name or logo must be displayed only on the rear portion of both side rear quarter panels.

(3) Dispatch Service Telephone Number. If permit holder chooses to display the dispatch service telephone number, the telephone number must be no more than three (3) inches in height and posted on the top front portion of both front side quarter panels or lower part of left and right rear windows

(4) "Driver Carries Only $_____Change". If the permit holder chooses to post "Driver Carries only $_____Change", postings must be located only on rear quarter panels near the rear door but clear of the rates of fare.

(5) "Leased to Driver". If permit holder chooses to post "Leased to Driver," it must be posted only on both side rear quarter panels near the rear door but clear of the rate of fares in lettering no larger than 1 inch.

(6) Body Numbers. If the permit holder chooses to post an internally assigned body number, different from the ~~medallion number~~Permit Number, the body number shall be posted in one (1) inch numerals on the front and rear bumpers.

(e) All other exterior vehicle markings are prohibited unless they are directly related to the permit holder's business and pre-approved by the Chief Executive Officer.

(f) All taxicabs shall be equipped and operated so that they may be dispatched by two-way radio or two-way electronic communication, monitored by a dispatcher, in response to a telephone or other request for service by a prospective passenger.

(1) Means of dispatch device must be turned on, and audible to driver, at all times the taxicab is in service.

(2) Dispatch equipment, such as a ~~two-way radio~~, cellular phone or tablet, shall be securely mounted within the vehicle in such a way to be visible to peace officers and MTS inspectors and allow for hands-free operation while the vehicle is in motion.

~~(g) If radio dispatch capability is utilized, the dispatch service must abide by the following: the radio dispatch capability described in paragraph (d) of this section must be provided so as to conform to the regulations of the Federal Communications Commission (FCC) pertaining to Land Transportation Radio Services. Failure to conform to those regulations will additionally constitute a failure to meet the requirements of this section.~~

~~(1) The current valid FCC license shall be on file with MTS.~~

~~(2~~(g) Taxicab permit holder shall provide current proof the ~~radio or~~ electronic device has passed inspection by an MTS-approved inspector.

~~(3) Taxicab radios shall have the capability to receive or transmit only on frequencies specified in the FCC license of the radio service subscribed to by the permit holder.~~

(h) Each permit holder shall equip each permitted taxicab with a device capable of electronically processing credit card transactions~~.~~ including contactless payment methods. The device must be visible to all passengers and must allow the passenger to operate the payment device independently of the driver, without having to hand the credit card to the driver. The device must be fully operational at all times. The permit holder dispatch service, or driver shall be the merchant of record associated with the device. Any means of electronic credit card acceptance is acceptable so long as it complies with the provisions set forth in Section 1.8 (s).

(Section 2.3 amended 6/18/2026)
(Section 2.3 amended 1/20/2022)
(Section 2.3 amended 11/12/2020)
(Section 2.3 amended 1212/2019)
(Section 2.3 amended 11/8/2018, effective 1/1/2019)
(Section 2.3 amended 12/14/2017)
(Section 2.3 amended 10/13/2016)
(Section 2.3 amended 5/12/2016)
(Section 2.3 amended 2/12/2015)
(Section 2.3 amended 11/15/2012)
(Section 2.3 amended 6/27/2002)
(Section 2.3 amended 9/24/1998; Section 2.3c operative May 1, 1999)
(Section 2.3 amended 6/27/1991; effective 7/27/1991)
(Section 2.3 amended 4/10/1997)

Section 2.4 - Operating Regulations

(a) Operating regulations shall be promulgated and adopted from time to time by resolution of the Board. These resolutions will have the force of law and will be published and processed as though set forth in this Ordinance.

(b) Any driver employed to transport passengers to a definite point shall take the most direct route possible that will carry the passenger to the destination safely and expeditiously.

(c) A failure of the driver of any taxicab or LSV to assist a passenger with the loading or unloading of a reasonable size, number, and kind of passenger luggage or other items, when requested to do so, shall be specifically defined as a violation of this section.

(1) A driver is not required to lift any single piece of passenger luggage or other item that exceeds 25 pounds in weight. The requirement for loading or unloading assistance shall be limited to retrieval from or deposit onto the nearest curbside adjacent to the legally parked taxicab or LSV. A sign in the form of a transparent decal may be affixed to the rear-door, side window stating that, “DRIVER IS NOT REQUIRED TO LOAD LUGGAGE IN EXCESS OF 25 POUNDS PER ITEM OR OF A SIZE OR KIND THAT WILL NOT SAFELY FIT IN THE DESIGNATED LUGGAGE AREA OF THIS VEHICLE.”

(2) A driver with a disability that prevents them from handling items as defined in subsection (1) above must receive prior approval from MTS and provide supporting documentation of such a disability. After receiving MTS approval, a driver may affix a small sign either in the passenger section of the vehicle to be clearly visible to a rear seat passenger or on the inside of the trunk cover lid stating that, “DRIVER HAS DISABILITY THAT PREVENTS HANDLING OF LUGGAGE.”

(d) No driver of any taxicab or LSV shall stop, park, or otherwise leave standing a taxicab or LSV on the same side of the street in any block in which taxicabs or LSVs are already stopped, parked, or otherwise standing except the taxicab or LSV may actively unload in a passenger loading zone or be parked in a marked taxi/LSV stand.

(e) No driver shall stop, park or otherwise leave standing a taxicab or LSV within one-hundred (100) feet of any other taxicab or LSV except in a marked taxi/LSV stand or while actively loading or unloading passengers.

(f) An out-of-service sign must be displayed when the taxicab or LSV is not available for hire and is being operated or is lawfully parked for purposes of maintenance, inspection, or personal use. The sign must be placed in a location in the vehicle that is clearly visible from the exterior of the vehicle. The sign must be of durable material and written in block letters in black ink and easily readable from a distance of not less than ten (10) feet.

(g) A taxicab driver may seek passengers by driving through any public street or place without stops, other than those due to obstruction of traffic, and at such speed as not to interfere with or impede traffic.

(h) It shall be unlawful, however, for the driver to seek passengers by stopping at or driving slowly in the vicinity of an entertainment center or transportation center or any other location of public gathering, in such a manner as to interfere with public access to or departure from that center or location, or so as to interfere with or impede traffic.

(i) It shall also be unlawful for a taxicab or LSV driver, having parked and left their taxicab or LSV, to solicit patronage among pedestrians on the sidewalk, or at any entertainment center, transportation center, or other location of public gathering.

(j) No person shall solicit passengers for a taxicab or LSV other than the driver thereof; however, the Chief Executive Officer may authorize a dispatcher to solicit passengers and assist in loading passengers at such times and places as, in their discretion, public service and traffic conditions require.

(k) It shall be unlawful for the driver or operator of any taxicab or LSV to remain standing in any established taxicab or LSV stand or passenger loading zone, unless the driver or operator remains within twelve (12) feet of their taxicab or LSV, except when the driver or operator is actually engaged in assisting passengers to load or unload.

(l) Only paying passengers and persons specifically authorized by the Chief Executive Officer may occupy a taxicab or LSV that is already occupied by a paying passenger. No driver, once a paying passenger has occupied the taxicab or LSV, shall permit any other nonpaying passenger to occupy or ride in the taxicab or LSV.

(m) It shall be unlawful to respond to a call for service dispatched to another operator except when an LSV refers service to another operator because the trip distance is outside of the approved area of jurisdiction.

(n) The taxicab or LSV driver shall maintain a daily trip log which shall be available for inspection upon request by any peace officer or MTS inspector. The trip log will accurately show the driver's name, taxicab or LSV number, date, time, beginning odometer reading, starting and ending locations, type of service provided, and fare paid for each trip provided.

(1) The daily trip log shall consist, at a minimum, of a five- by seven-inch paper form retained on a stiff-board writing surface with ruled lines and columns sufficient to contain the required information. All entries will be in black or dark blue ink, block letters, and be clearly legible. Colored paper that is lightly shaded is allowed provided there is sufficient contrast for entries to be easily read. Onboard electronically generated reports that meet the legibility requirements are acceptable.

(2) The driver shall deliver trip logs to the permit holder upon request or at a weekly interval, whichever is less.

(3) If a taxicab, the trip log shall be retained for at least 18 months.

(o) All operating regulations set forth in Section 1.8 apply.

(Section 2.4 amended 3/14/2024)
(Section 2.4 amended 1/20/2022)
(Section 2.4 amended 11/8/2018, effective 1/1/2019)
(Section 2.4 amended 12/14/2017)
(Section 2.4 amended 10/13/2016)
(Section 2.4 amended 5/12/2016)
(Section 2.4 amended 2/12/2015)
(Section 2.4 amended 11/15/2012)
(Section 2.4 amended 8/7/2003)
(Section 2.4 amended 11/14/2002)
(Section 2.4 amended 6/24/1999)

(Section 2.4 amended 2/13/1997)
(Section 2.4 amended 6/27/1991; effective 7/27/1991)

Section 2.5 - Stands

(a) The Chief Executive Officer may establish, locate and designate shared use taxicab/LSV stands for one or more taxicabs/LSVs, which stands when so established shall be appropriately designated "Taxis/LSVs Only." The operating regulations of this Ordinance shall apply to such stands and to taxicab/LSV stands established by the San Diego Unified Port District in areas under its jurisdiction within the City.

(b) Each taxicab or LSV stand established hereunder may be in operation twenty-four (24) hours of every day, unless otherwise specified by the Chief Executive Officer.

(c) Any individual, partnership, association, or other organization may petition MTS requesting that a new taxicab/LSV stand be established, or that the location of an existing taxicab/LSV stand be changed to another location. ~~A nonrefundable filing fee to be determined by the Chief Executive Officer must be paid at the time the petition is submitted.~~

(d) It shall be unlawful for a vehicle other than a taxicab or LSV with a proper MTS taxicab or LSV permit to occupy a taxi/LSV stand.

(e) LSVs may only occupy taxicab stands that are specially signed, designated their approved use.

(Section 2.5 amended 6/18/2026)
(Section 2.5 amended 11/15/2012)
(Section 2.5 amended 8/7/2003)

Section 2.6 - Dispatch Services

(a) In order to provide taxicab dispatch service required by Section 2.3(g, h), the dispatch service organization adding or changing subscribers, shall establish and conform to written policies and procedures concerning the following:

(1) Standard time elapse for answering the telephone service-request line(s).

(2) Standard time elapse for the taxicab's arrival at requested pick-up location.

(3) Passenger's request for a specific driver ("personals").

(4) Additional two-way communication devices (mobile or cellular phones) in taxicabs

(5) Lost and found for passengers' items.

~~()~~

(6) Immediately notify the permit holder of all lost items and inquiries.

Current written policies and procedures shall be available to subscribers from the dispatch organization, and on file with MTS.

(b) Dispatch service organizations shall, be able to receive and respond to service requests or other operational questions 24 hours a day as further described at Section 2.6 (c), have staff on duty for lost and found pick-ups and drop offs during reasonable hours or by appointment, at a preapproved physical commercial business location, answer telephone-request line(s), properly dispatch those requests to all members, ~~provide radio response to all licensed radio frequencies/channels,~~ and respond to direct requests from drivers, permit holders, and MTS as well as law enforcement and local regulatory agencies.

(c) A dispatch service organization shall maintain compliance with the 24 hour operation requirement though a live person answering phone calls, automated voice recognition technology so long as it provides the option to connect to a live person, or by forwarding trip requests to a different dispatch service organization that provides 24 hour operations.

(d) A dispatch service organization shall utilize a transportation or fleet management specialized computerized system designed to automate the flow of information between a dispatch service organization and driver that at a minimum electronically records: trip information (i.e. address or location description) of both start and end locations; the route taken; and the up-front price if Electronically Booked.

(e) A dispatch service organization shall at all times have the ability to provide in real time, the GPS location of every taxicab while the taxicab is in service. It shall be the responsibility of the dispatch service organization to provide the GPS tracking method through a computerized dispatch software or other similar technology.

(f) Dispatch services shall keep electronic or written records of all requests for taxi service, calls dispatched, the time(s) each taxicab goes in and out of service, and final fare for all trips. Final fare may be calculated by Dispatch services through trip data. These records shall be kept on file for a minimum of six (6) months, and made available to MTS, upon request.

(g) No person, partnership, corporation, association, other organization providing ~~radio or other~~ dispatch ~~service~~services shall dispatch a request for service to a driver, owner, or vehicle unless the driver, owner, and vehicle are properly ~~licensed~~permitted to provide the service requested.

~~(h~~(h) Dispatch services shall not refuse or discourage a prospective or actual fare based on trip purpose (e.g. transport food or who must meet a medical appointment).

(i) The Chief Executive Officer may, at any time, revoke or suspend the taxicab dispatch privileges of or fine any person, partnership, corporation, association, other organization providing ~~radio or other~~ dispatch service that violates a provision of this ordinance.

(Section 2.6 amended 6/18/2026)
(Section 2.6 amended 3/14/2024)
(Section 2.6 amended 11/12/2020)
(Section 2.6 amended 11/8/2018, effective 1/1/2019)
(Section 2.6 amended 12/14/2017)
(Section 2.6 amended 10/13/2016)
(Section 2.6 amended 11/15/2012)
(Section 2.6 amended 8/7/2003)
(Section 2.6 amended 9/24/1998)
(Section 2.6 added 6/27/1991; effective 7/27/1991)

Section 2.7 - Driver Safety Requirements

(a) No taxicab vehicle shall be operated unless such vehicle is equipped with an emergency signaling or any other emergency electronic communication device approved by the Chief Executive Officer.

(b) No taxicab vehicle may be operated with window tinting, shades, or markings that could interfere with a clear view of the cab interior from the outside, unless equipped by the vehicle manufacturer and approved by an MTS inspector.

(c) Taxicab dispatch services required by Section 2.3 shall at all times have a dispatch staff person on duty who has successfully completed a driver safety training course approved by the Chief Executive Officer.

(d) The use of a cellular phone or other similar electronic device by drivers is prohibited at all times when the vehicle is in motion. Otherwise, California Vehicle Code rules apply.

(Section 2.7 amended 11/12/2020)
(Section 2.7 amended 11/8/2018, effective 1/1/2019)
(Section 2.7 amended 12/14/2017)
(Section 2.7 amended 10/13/2016)
(Section 2.7 amended 5/12/2016)
(Section 2.7 amended 11/15/2012)
(Section 2.7 amended 8/7/2003)
(Section 2.7 added 9/24/1998)

Section 2.8 – Prearranged Trips by Taxicabs

(a) A Prearranged Trip shall mean a trip using an online enabled application, dispatch or Internet Web site.

(b) A MTS taxicab permit holder may provide Prearranged Trips anywhere within San Diego County.

(c) A taxicab not permitted by MTS, but permitted by another authorized agency within San Diego County, may provide Prearranged Trips within City or County. MTS will not require such a taxicab to apply for a permit with MTS if the taxicab is not Substantially Located in City or County. MTS will require such a taxicab to comply with mechanical safety regulations within Section 1.8 (g) as a public health, safety and welfare measure.

(Section 2.8 amended 11/12/2020)
(Section 2.8 amended 2/14/2019)
(Section 2.8 added 11/8/2018, effective 1/1/2019)

SECTION 3.0 - CHARTER VEHICLES

Section 3.1 - Rates of Fare

~~(a) Within thirty (30) calendar days following the issuance of a permit by the Chief Executive Officer, each permit holder shall file a document with the Chief Executive Officer reflecting the rates of fare being charged by said permit holder for charter services.~~

~~(b) If a permit holder desires to change the rates of fare being charged for charter services during any calendar year, they shall first file a document with the Chief Executive Officer indicating said changes, and no change shall be effective until fourteen (14) days following the filing of said change.~~

~~(c) No permit holder shall charge any~~ The rate of fare ~~for charter services unless said rates are on file with the Chief Executive Officer as aforesaid, and duly displayed.~~ may

~~(d) The rates of fare shall~~ be established on a per capita plus per mile basis or by a prearranged written contract on a per-mile or per-hour basis.

(Section 3.1 amended 6/18/2026)
(Section 3.1 amended 1/20/2022)
(Section 3.1 amended 4/10/1997)

Section 3.2 - Operating Regulations

(a) It shall be unlawful for any charter vehicle to remain standing on any public street in the City, except such reasonable time necessary when enabling passengers to load or unload.

(b) It shall be unlawful for any person, either as owner, driver, or agent, to approach and solicit patronage upon the streets, sidewalks, in any theater, hall, hotel, public resort, railway or airport, or light rail transit station.

(c) The charter for-hire vehicle driver shall maintain a daily trip log which shall be available for inspection upon request by any peace officer or MTS inspector. The trip log will accurately show the driver's name and the ~~medallion number~~Permit Number on the vehicle. In addition, the trip log shall identify the scheduling parties by name, date, and time of the prearranged hire. If the trip is medical in nature, the passenger's name may be omitted.

(d) All other operating regulations defined in Section 1.8 apply.

(Section 3.2 amended 6/18/2026)
(Section 3.2 amended 12/14/2017)
(Section 3.2 amended 11/14/2002)

SECTION 4.0 - SIGHTSEEING VEHICLES

Section 4.1 - Rates of Fare

~~(a) Within thirty (30) calendar days following the issuance of a permit by the Chief Executive Officer, each permit holder shall file a document with the Chief Executive Officer reflecting the rates of fare being charged by said permit holder of sightseeing vehicle services.~~

~~(b) If a permit holder desires to change the rates of fare being charged for sightseeing services during any calendar year, the permit holder shall first file a document with the Chief Executive Officer indicating said changes, and no change shall be effective until fourteen (14) days following the filing of said changes.~~

~~(c~~(a) No permit holder shall charge any rate of fare for sightseeing services unless said rates are ~~on file with the Chief Executive Officer as aforesaid, and duly~~clearly and conspicuously displayed.

(~~d~~b) The rate of fare shall be established on a per capita or per event basis.

(Section 4.1 amended 6/18/2026)
(Section 4.1 amended 11/8/2018, effective 1/1/2019)
(Section 4.1 amended 4/10/1997)

Section 4.2 - Operating Regulations

(a) It shall be unlawful for any sightseeing vehicle to remain standing on any public street in the City, except such reasonable time necessary when enabling passengers to load or unload.

(b) It shall be unlawful for any person, either as owner, driver, or agent, to approach and solicit patronage upon the streets, sidewalks, in any theater, hall, hotel, public resort, railway or airport, or light rail transit station.

(c) All other operating regulations defined in Section 1.8 apply, except Section 1.8 (x).

(Section 5.0 amended 11/12/2020)

SECTION 5.0 - NONEMERGENCY MEDICAL VEHICLES

Section 5.1 - Rates of Fare

~~(a) Within thirty (30) calendar days following the issuance of a permit by the Chief Executive Officer, each permit holder shall file a document with the Chief Executive Officer reflecting the rates of fare being charged by said permit holder for nonemergency medical vehicle services.~~

~~(b) If a permit holder desires to change the rates of fare being charged for nonemergency medical vehicle services during any calendar year, they shall first file a document with the Chief Executive Officer indicating said changes, and no change shall be effective until fourteen (14) days following the filing of said change.~~

~~(c) No permit holder shall charge any rate of fare for nonemergency medical vehicle services unless said rates are on file with the Chief Executive Officer as aforesaid.~~

~~(d)~~ The rate of fare ~~for exclusive ride service shall~~may be established on a per capita plus per mile basis~~.~~

~~(e) The rates of fare for shared ride service shall be established~~ or by a prearranged written contract on a per~~-capita plus per~~ -mile or per-hour basis~~, or on a per capita plus per zone basis.~~.

(Section 5.1 amended 6/18/2026)
(Section 5.1 amended 1/20/2022)
(Section 5.1 amended 12/14/2017)
(Section 5.1 amended 4/10/1997)

Section 5.2 - Operating and Equipment Regulations

(a) It shall be unlawful for any nonemergency medical vehicle to remain standing on any public street in the City, except when enabling passengers to load or unload.

(b) All other operating regulations defined in Section 1.8 apply.

(c) Special equipment on a nonemergency medical vehicle shall, at all times the vehicle is in operation, be in proper working order. Such vehicles equipped with wheelchair ramps or lifts shall have proper device(s) to secure each wheelchair on board.

~~(d~~(d) Gurney Vans are nonemergency medical vehicles. A Gurney Van is a vehicle that is specially constructed, modified, or equipped and/or used to transport patients who cannot travel in an upright, sitting position, and for whom the need for any medical care, treatment, or procedure other than pre-established devices solely maintained by the patient is not required, likely, or foreseeable. If a Gurney Van:

(1) Each vehicle shall have appropriately installed passenger gurney seatbelts.

(2) Each vehicle shall have the appropriate number of floor-mounted approved gurney retention mechanisms.

(3) Each vehicle shall be equipped with an appropriate supply of single-use gurney linens.

(4) Each vehicle shall be equipped with at least one (1) gurney compliant with current local, state, industry, and federal standards, and must be maintained in clean condition and good working order.

(e) Nonemergency medical vehicles shall not provide transportation when any passenger's medical care, treatment, or procedures, other than pre-established devices solely maintained by the patient, are required, likely, or foreseeable.

(f) Nonemergency medical vehicles shall not enter a hospital emergency department through the ambulance bay, ambulance-only doors, or other entry points without a hospital staff escort.

(g) The permit holder is responsible for ensuring that the driver of a nonemergency medical vehicle is properly trained:

(1) in the use of any of the vehicle's special equipment;

(2) concerning supervision of or assistance to the disabled passengers whom the driver is to transport.

(h) Each non-emergency medical vehicle shall contain:

(1) A fire extinguisher of the dry chemical or carbon dioxide type with an aggregate rating of at least 5 B/C units and a current inspection card affixed to it.

(2) A minimum of three (3) red emergency reflectors.

(3) A first-aid kit containing medical items to adequately attend to minor medical problems.

(4) Seatbelts for all seats used by ambulatory clients.

(5) Equipment necessary to comply with California Occupational Safety and Health Administration (Cal OSHA) standards for exposure to blood borne and airborne pathogens.

(Section 5.2 amended 6/18/2026)
(Section 5.2 amended 6/22/1995)
(Section 5.2 amended 6/24/1993)

Section 5.3 - Driver and Driver Assistant Identification Cards and Training

In addition to the requirements set forth in Section 1.12, nonemergency medical vehicle ~~drivers~~Drivers and Driver Assistants shall acquire and maintain valid proof of proper first-aid and cardiopulmonary resuscitation (CPR) training. Driver Assistant shall mean every person employed by, or acting as an agent of the Non-Emergency Medical Vehicle Permit Holder who travels inside the for-hire vehicle for the purpose of assisting with all aspects of operation of the vehicle and safety of the passenger.

(Section 5.3 amended 6/18/2026)
(Section 5.3 added 6/24/1993)

SECTION 6.0 - JITNEY VEHICLES

Section 6.1 - Rates of Fare

~~(a) Within thirty (30) calendar days following the issuance of a permit by the Chief Executive Officer, each permit holder shall file a document with the Chief Executive Officer reflecting the rates of fare being charged by said permit holder for jitney services.~~

~~(b) If a permit holder desires to change the rates of fare being charged for jitney services during any calendar year, they shall first file a document with the Chief Executive Officer indicating said changes, and no change shall be effective until fourteen (14) days following the filing of said change.~~

~~(c~~(a) No permit holder shall charge any rate of fare for jitney services unless said rates are ~~on file with the Chief Executive Officer and duly~~clearly and conspicuously displayed.

(~~d~~b) The rates of fare shall be established on a per capita basis.

(Section 6.1 amended 6/18/2026)
(Section 6.1 amended 1/20/2022)
(Section 6.1 amended 11/8/2018, effective 1/1/2019)
(Section 6.1 amended 4/10/1997)

Section 6.2 - Jitney Routes

(a) A permit holder who wishes to provide a fixed route service shall apply to the Chief Executive Officer for authorization to serve a defined route with a specific vehicle. No for-hire vehicle may be operated as a jitney until it has met all other requirements of this Ordinance and has been approved for service on a specific fixed route. A jitney may be authorized to serve more than one route; however, a jitney may provide fixed route service on only those routes which the Chief Executive Officer has approved in writing for that vehicle.

(b) The application for a fixed route shall be in writing and shall contain the following information:

(1) A description of the vehicle(s) which will be utilizing the route;

(2) A detailed written description of the route, to include starting location, ending location, and the street name and direction of travel for all streets to be used in the route;

(3) A map in sufficient detail to clearly indicate the proposed route;

(4) The fare to be charged; and

(5) Such other information as the Chief Executive Officer may, in their discretion, require.

(c) Upon approval of a fixed route by the Chief Executive Officer, the permit holder shall display a representation of the route, the fare, and the permit holder's trade name on each side of the vehicle in letters large enough to be easily read by potential customers in accordance with the standards established by the Chief Executive Officer under Section 6.5 of this Ordinance. Only one (1) route may be displayed on a vehicle at any time.

(d) If a permit holder wishes to alter their approved fixed route(s), they must apply in writing to the Chief Executive Officer, submitting the information required in Section 6.2 (b).

(e) The Chief Executive Officer may, in their discretion, place conditions on the approval of fixed routes.

(f) The Chief Executive Officer may change a route that has been approved previously when the Chief Executive Officer finds it necessary to do so. A change of route may be necessary when a street has been closed temporarily or permanently because of construction, or the direction of a street has been changed, or a street has been vacated, or for similar reasons as determined by the Chief Executive Officer. The Chief Executive Officer shall notify in writing any permit holder whose route has been changed. ~~The Chief Executive Officer's change of a route is subject to appeal under Section 1.16 of this Ordinance.~~

(g) Except as provided for within this subsection, an approved fixed route may not be transferred to another vehicle or permit holder. A permit holder may receive approval for a vehicle that is replacing a jitney already in service to use the approved fixed routes of the replaced vehicle.

(h) A permit holder may apply for a non-fixed, flexible route within an MTS determined geographic boundary and operational timeframe that MTS determines to be beneficial to passengers and businesses located within such boundaries. The application for a non-fixed, flexible route shall be in writing and shall contain the following information:

(1) A description of the vehicle(s) which will be utilizing the route;

(2) A map in sufficient detail to clearly indicate the proposed operation within the MTS approved geographic boundary;

(3) The fare to be charged; and

(4) Such other reasonable information as the Chief Executive Officer may, their discretion, require.

(Section 6.2 amended 6/18/2026)
(Section 6.2 amended 1/20/2022)
(Section 6.2 amended 11/12/2020)
(Section 6.2 amended 11/14/2002)

Section 6.3 – Operating Regulations

(a) It is unlawful for any jitney to remain standing on any public street in the City, except when enabling passengers to load or unload, or except when standing in a jitney holding zone for the time period established by MTS.

(b) It is unlawful for any person including, but not limited to, a jitney owner, driver, or agent thereof, to approach and solicit patronage upon the streets, sidewalks, in any theater, hall, hotel, public resort, railway, airport, or light rail transit station.

(c) A peace officer or MTS inspector may authorize a dispatcher to solicit passengers and assist with loading passengers at such times and places as, in ~~his/her~~their discretion, public service and traffic conditions require.

(d) Except when a driver or operator is actually engaged in assisting passengers to load or unload, a jitney driver or operator must remain within twelve (12) feet of his/her jitney while the jitney is in service.

(e) It is unlawful for a jitney vehicle to operate a fixed route service on other than that route designated by the Chief Executive Officer.

(f) It shall be unlawful for a jitney driver to load or unload passengers in any place other than an authorized jitney stop, bus stop, or passenger loading zone.

(g) All other operating regulations defined in Section 1.8 apply.

(Section 6.3 amended 6/18/2026)
(Section 6.3 amended 11/14/2002)

Section 6.4 - Jitney Holding Zones

(a) The Chief Executive Officer may, by resolution, locate and designate holding zones for one (1) or more jitneys, which holding zones when so established, shall be designated by appropriate signs. The operating regulations of Section 6.3 shall apply to any holding zones so established, and to holding zones established by the San Diego Unified Port District in areas under its jurisdiction. The Chief Executive Officer may, by their discretion, establish the maximum number of jitneys permitted to remain standing at one time in a holding zone.

(b) Each holding zone established hereunder shall be in operation twenty-four (24) hours of every day, unless otherwise specified by the Chief Executive Officer. The Chief Executive

Officer shall adopt written standards to determine whether to allow holding zones to be in operation fewer than twenty-four (24) hours every day. If a holding zone is to be in operation fewer than twenty-four (24) hours every day, the Chief Executive Officer shall cause signs to be posted at or near the holding zone indicating the hours and days of operation.

(c) The Chief Executive Officer may, on their own motion, establish holding zones.

(d) Any individual, partnership, corporation, association or other organization may petition MTS requesting that a new holding zone be established. The petition must be filed in writing with the Chief Executive Officer or his/her designee. The petition must state the reason for the request and the proposed location(s). The Board may approve, deny, or modify the request.

(e) Whether initiated by the Chief Executive Officer under Subsection (c) of this section or by persons described in Subsection (d) of this section, before any holding zone is established, the proposed location of any holding zone must be reviewed by the Traffic Engineer of the City. The Traffic Engineer shall report his/her recommendations to approve, deny, or modify the proposed location in writing to the Chief Executive Officer. The Traffic Engineer's report shall include a statement of reasons supporting the recommendation to the Chief Executive Officer.

(f) The Chief Executive Officer shall, by resolution, establish a maximum time limit for individual jitneys to remain standing in any holding zone. The time limit shall apply uniformly to all holding zones.

(g) It shall be unlawful for a vehicle other than a jitney with a proper MTS jitney permit to occupy a jitney holding zone.

(Section 6.4 amended 1/20/2022)
(Section 6.4 amended 11/15/2012)

Section 6.5 - Equipment and Specifications

(a) Each jitney shall bear on the outside, signs clearly designating the route which it serves. The specifications of the sign are subject to the approval of the Chief Executive Officer. The Chief Executive Officer shall adopt written standards for approval or denial of the size of the signs, the location of the signs on the vehicle, the size of the lettering or graphics on the signs, and other specifications that the Chief Executive Officer finds necessary.

(b) All jitney vehicles must bear a trade name and shall be assigned a body number by the permit holder. The trade name and body number so assigned shall be placed on the vehicle in accordance with written standards adopted by the Chief Executive Officer.

Any violation of this Ordinance shall constitute an infraction unless otherwise specified.

SECTION 7.0 – LOW-SPEED VEHICLES

Section 7.1 – Low-Speed Vehicle (LSV) Definition

Low-Speed Vehicles (LSV) shall mean every vehicle that is designated per the requirements of Ordinance No. 11, Section 1.1(s). LSVs may operate by zones and/or a prearranged basis.

(Section 7/1 amended 3/14/2024)
(Section 7.1 amended 2/14/2019)
(Section 7.1 amended 11/8/2018, effective 1/1/2019)

(Section 7.0 and 7.1 added 8/7/2003)

Section 7.2 – Establishment of Zones

The Chief Executive Officer shall establish and authorize the use of zones of operation.

(Section 7.2 added 8/7/2003)

Section 7.3 – Zone Rates of Fare

(a) All vehicles permitted as LSV may use two methods of seeking compensation, either by zone rates or on a prearranged basis. Either method may be used when working inside of an approved zone. However, when operating on a prearranged charter basis, within an approved zone, no operator may exceed the maximum number of vehicles that are permitted.

~~(b) Within thirty (30) calendar days following the issuance of a permit by the Chief Executive Officer, each permit holder shall file a document with the Chief Executive Officer reflecting the rates of fare being charged by said permit holder for LSV services.~~

~~(c) When a permit holder desires to change the rates of fare being charged for LSV services during any calendar year, they shall first file a document with the Chief Executive Officer indicating said changes, and no change shall be effective until fourteen (14) days following the filing of said change.~~

~~(d~~(b) No permit holder shall charge any rate of fare for LSV services unless said rates are ~~on file with the Chief Executive Officer as aforesaid, and duly~~clearly and conspicuously displayed.

(~~e~~c) The rates of fare shall be established by a zone and/or prearranged written contract on a per-mile or per-hour basis.

~~(f) The maximum rates of fare shall be established pursuant to Section 2.2.~~

(Section 7.3 amended 6/18/2026)
(Section 7.3 amended 1/20/2022)
(Section 7.3 amended 10/13/2016)
(Section 7.3 added 8/7/2003)

Section 7.4 – ~~Spare Vehicle Policy~~BLANK

~~(a) The following sets out procedures for LSV permit holders to place a spare vehicle into service as either a temporary replacement for a permitted vehicle that is out of service for recharging or mechanical problems.~~

~~(1) Spare LSVs must be marked with the approved company markings.~~

~~(2) In place of the medallion number, the spare LSV must be marked "Spare LSV." Where more than one spare LSV is being requested, under the provisions of paragraph 9, the LSVs will be marked "Spare LSV 1," "Spare LSV 2," and so on. The "Spare LSV" marking should be sized to fit in approximately the same space as the medallion number would otherwise be placed with legibility and visibility being the primary criteria.~~

~~(3) Spare LSVs must be inspected upon initial issuance and annually thereafter.~~

~~(4) All spare LSVs must meet all MTS insurance requirements.~~

~~(5) To use a spare LSV that meets the requirements of 1 through 4 above, the permit holder must communicate in writing (facsimile is acceptable), a request to place a spare LSV into service.~~

~~The request must state:~~

~~(A) the medallion number of the LSV being taken out of service, the reason for being out of service, and the location of the out-of-service LSV; and~~

~~(B) the estimated time the spare LSV will be in use.~~

~~(6) When the out-of-service LSV is ready to re-enter service, the permit holder must immediately notify MTS in writing (facsimile is acceptable).~~

~~(7) The out-of-service LSV may not be required to be reinspected to be placed back into service.~~

~~(8) The spare LSV must be removed from service at the time the LSV it has been replacing is placed back into service.~~

~~(9) Under normal circumstances, a permit holder may utilize spare LSVs. Permit holders may utilize spare LSVs in a ratio of 3:1 permits held.~~

~~(10) Spare LSVs that are placed in service may only operate inside of the MTS-approved zone or zones. A permit holder shall not operate more spare vehicles than he/she has regular permitted vehicles.~~

~~(11) A permit holder found to have operated a spare LSV in deliberate violation of these procedures will be subject to immediate suspension/revocation of the permit and the loss of the spare LSV utilization privilege.~~

The text of Section 7.4 is deleted in its entirety effective June 178, 2026.

(Section 7.4 deleted 6/18/2026)
(Section 7.4 amended 10/13/2016)
(Section 7.4 amended 10/16/2003)
(Section 7.4 added 8/7/2003)

Section 7.5 – ~~LSV Driver Identification Cards~~BLANK

~~(a) Refer to Section 1.12 of this Ordinance to reference driver and permit holder ID requirements.~~

The text of Section 7.5 is deleted in its entirety effective June 18, 2026.

(Section 7.5 deleted 6/18/2026)
(Section 7.5 added 8/7/2003)

Section 7.6 - Equipment and Specifications

(a) Each LSV shall display whether out of service in accordance with section 2.4 (g) of this Ordinance, which shall indicate to a person outside the LSV whether the LSV is in operation or is not.

(b) Exterior Markings

(1) Mandatory Exterior Vehicle Markings. The ~~medallion number~~Permit Number shall be painted or permanently affixed, on the front of the vehicle, one (1) inch below the permit holder's trade name, two (2) inches high, utilizing "Univers" or other Chief Executive Officer pre-approved font in black or white lettering to produce maximum contrast adequately spaced for maximum readability.

(2) Optional Exterior Vehicle Markings. The permit holder has the option of choosing to post any combination of the below-listed five options on their LSV which must be posted only at the specific location and in the size noted and are subject to the Chief Executive Officer's approval.

(A) Trade Name Logo. If the permit holder chooses to display their trade name logo, the trade name logo shall be posted only on the rear portion of both side rear quarter panels.

(B) Radio Service Provider. If the permit holder chooses to display the radio service provider name or logo, the radio service provider name or logo cannot utilize the words "cab" or taxi." The radio service provider name or logo must be displayed only on the rear portion of both side rear quarter panels.

(C) Telephone Number. If permit holder chooses to display a telephone number, the telephone number must be no more than two (2) inches in height and posted only on the top front portion of both front side quarter panels.

(D) "Driver Carries Only $_____ Change". If the permit holder chooses to post "Driver Carries only $_____Change", postings must be located only on panels near the rear door but clear of the rates of fare.

(E) "Leased to Driver". If permit holder chooses to post "Leased to Driver," it must be posted only on both rear quarter panels near the rear door area but clear of the rate of fares in lettering no larger than 1 inch.

(3) All other exterior vehicle markings are prohibited unless they are directly related to the permit holder's business and pre-approved by the Chief Executive Officer.

(c) All LSVs shall be equipped and operated so that they have adequate means of electronic communication during business hours. The LSV company business address shall serve as the storefront for the purpose of handling lost and found items. All other operational requirements she be met as set forth in section 1.8~~ (c).~~.

(d)

Low-Speed Vehicles shall comply with the California Vehicle Code, e.g., not impede traffic, and, where applicable, not operate on streets where posted speed limits are above 35 miles per hour.

(Section 7.6 amended 6/18/2026)
(Section 7.6 amended 1/20/2022)

(Section 7.6 amended 11/8/2018, effective 1/1/2019)
(Section 7.6 amended 12/14/2017)
(Section 7.6 amended 10/4/2016)
(Section 7.6 added 8/7/2003)

SECTION 8 - EFFECTIVE DATE OF ORDINANCE

This Ordinance shall be effective 30 days after adoption, and before the expiration of 15 days after its passage, this Ordinance shall be published once with the names of the members voting for and against the same in a newspaper of general circulation published in the County of San Diego.

Commented [SL1]: @Lucia Mansour should we revise this to match our practices?

Amended: 6/18/2026
Amended: 3/14/2024
Amended: 10/19/2023
Amended: 12/8/2022
Amended: 1/20/2022
Amended: 11/12/2020
Amended: 12/12/2019
Amended: 10/10/2019
Amended: 2/14/2019
Amended: 11/8/2018
Amended: 9/20/2018
Amended: 12/14/2017
Amended: 10/13/2016
Amended: 5/12/2016
Amended: 9/17/2015
Amended: 2/12/2015
Amended: 11/15/2012
Amended: 4/19/2012
Amended: 10/16/2003
Amended: 8/7/2003
Amended: 5/8/2003
Amended: 11/14/2002
Amended: 6/27/2002
Amended: 5/23/2002
Amended: 6/24/1999
Amended: 9/24/1998
Amended: 10/30/1997
Amended: 4/10/1997
Amended: 2/13/1997
Amended: 11/9/1995
Amended: 6/22/1995
Amended: 1/12/1995
Amended: 6/24/1993
Amended: 6/27/1991
Amended: 5/23/1991
Amended: 10/11/1990
Repealed & Readopted: 8/9/1990
Amended: 4/12/1990
Amended: 4/27/1989
Adopted: 8/11/1988

Clerk Affidavit

PASSED AND ADOPTED, by the Board of Directors this 18th day of June 2026. The Ordinance amended was adopted by the following vote:

AYES:

NAYS:

ABSENT:

ABSTAINING:

_____
Chairperson
San Diego Metropolitan Transit System

ATTEST my hand and the seal of the San Diego Metropolitan Transit System this 18th day of June 2026.

Approved as to form:

_____	_____
Clerk of the Board San Diego Metropolitan Transit System	General Counsel San Diego Metropolitan Transit System

Metropolitan Transit System

Policies and Procedures No. 34

Board Approval: ~~3/14/2024~~6/18/2026

SUBJECT:

FOR-HIRE VEHICLE SERVICES

PURPOSE:

To establish a policy with guidelines and procedures for the implementation of MTS Ordinance No. 11.

BACKGROUND:

Regulation of for-hire vehicle service is in the interest of providing the citizens and visitors to the MTS region and particularly the Cities of Chula Vista, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, and Santee, with a good quality local transportation service. Toward this end, MTS finds it desirable to regulate the issuance of taxicab permits, to establish maximum rates of fare, and to provide for annual review of cost-recovery regulatory fees.

POLICY:

34.1 City of San Diego Entry Policy

New City of San Diego taxicab permits will be issued in accordance with San Diego City Council Policy No. 500-02, “Taxicab Permits”.

34.2 Maximum Rates of Fare Policy

Except for Electronically Booked taxicab trips, as further defined at MTS Ordinance No. 11, maximum rate of fare for exclusive ride and group ride hire of taxicabs shall be made~~ -~~ in accordance with the change in the Annual All Urban Western Transportation Consumer Price Index (CPI)/San Diego. The fare structure shall consist of the dollar amounts charged by permit holders for the flag drop, the per-mile charge, waiting-time charge, first zone, and each additional zone charge. The maximum rates of fare shall be computed annually by the Chief Executive Officer and presented at a noticed public hearing of the Taxicab Advisory Committee.

34.2.1 Maximum Rates of Fare Determination

Unless Section 34.2.2 applies, the maximum fare determination shall be adjusted annually based on the 1990 Western transportation CPI/San Diego amounts of $1.40 flag drop, $1.50 per mile, and $12.00 per hour

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waiting. Adjustments shall be rounded up or down, as appropriate, to the nearest even $0.10 increment.

34.2.2 Maximum Rates of Fare Determination - Only for Taxicabs Equipped with Point Of Sale Devices Electronically Connected to the Taximeter and Equipped with Printed ~~orElectronically~~or Electronically Conveyed Receipt Capability

Taxicabs equipped with point of sale devices electronically connected to the taximeter and capable of printing or electronically coveying receipts may charge the an increase of 6% more than the Maximun Rates of Fare for Taxicabs without such devices, as determined pursuant to Section 34.2.1. Adjustments shall be rounded up or down, as appropiate, to the nearest $0.10 increment.

34.3 Airport Taxicab Fare Policy

In addition to the applicable maximum rate of fare described in Section 34.2.1, a taxicab operator may charge an “extra” equal to the Airport ~~Trip~~Access Fee assessed against the individual taxicab operator by the San Diego County Regional Airport Authority. The extra may not be charged on any trip ~~that does not originate at the airport or on any trip~~ where the taxicab operator does not pay the fee to the San Diego County Regional Airport Authority. The extra charge may only be charged to the customer by utilizing the extra ~~button~~charge feature on the taxicab meter. A driver may not verbally request payment.

34.4 Regulatory Fee Review

The following procedures will be utilized for the establishment of for-hire vehicle regulatory fees.

34.4.1 In accordance with State of California Public Utilities Code Section 120266, MTS shall fully recover the cost of regulating the taxicab and other for-hire vehicle industry. Pursuant to MTS Ordinance No. 11, Sections 1.3(b), 1.4(a), 1.4((c), and 1.5(d), the Chief Executive Officer establishes a fee schedule to effect full-cost recovery and notify affected permit holders of changes in the fee schedule.

34.4.2 The procedure for establishing a regulatory fee schedule will include an annual review of the audited expenses and revenue of the previous fiscal year associated with MTS for-hire vehicle activities. The revised fee schedule will be available for review by interested parties in November each year ~~and is subject to appeal as provided for in Ordinance No. 11, Section 1.5(d).~~.

34.4.3 A fee schedule based on previous year expenses and revenue amounts will be put into effect each January.

POLICY.34.FOR-HIRE VEHICLE SERVICES

This policy was originally adopted on 12/8/88. This policy was amended on 7/26/90.

This policy was amended on 5/9/91.
This policy was amended on 6/13/91.
This policy was amended on 1/28/93.
This policy was amended on 5/11/95.
This policy was amended on 10/31/02.
This policy was amended on 4/24/03.
This policy revised on 3/25/04.
This policy was amended on 4/26/07.
This policy was amended on 7/17/08.
This policy was amended on 4/19/12.
This policy was amended on 4/16/15.
This policy was amended on 12/12/2019.
This policy was amended on 10/19/2023.
This policy was amended on 3/14/2024.
This policy was amended on 6/18/2026.

Metropolitan Transit System

Agenda Item No. 16

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

PRONTO Extend Pilot Program – Pilot Extension

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors approve an extension of the PRONTO Extend Pilot Program until June 30, 2029.

Budget Impact

The PRONTO Extend Pilot Program has seen a minor financial impact of $212,000 since its launch date of July 1, 2022 through May 31, 2026. The financial impact to extend the program from July 1, 2026 through June 30, 2029 is estimated to be approximately $230,000. Funding for the program will be included annually in the MTS Operating Budget.

DISCUSSION:

On July 1, 2022, the PRONTO Extend Pilot Program launched. The program provides free transit fares for eligible individuals ages 18 through 24 who have previously been in and exited a foster care system, or who are currently in an extended foster care program. PRONTO Extend provides eligible individuals with access to free public transportation fares in the MTS and North County Transit District (NCTD) service areas. Staff is seeking to extend the pilot program through June 30, 2029, to align its timing with the expected extension of the Youth Opportunity Pass Program. During this time, MTS will meet with NCTD and San Diego Association of Governments (SANDAG) to continue reviewing the success and fiscal impacts of the program.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Metropolitan Transit System

Agenda Item No. 17

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Operations Budget Status Report for April 2026

INFORMATIONAL ONLY

Budget Impact

None.

DISCUSSION:

This report summarizes the year-to-date operating results for April 2026 compared to the Fiscal Year (FY) 2026 amended budget for the San Diego Metropolitan Transit System (MTS). Attachment A-1 combines the operations, administration and other activities results for April 2026. Attachment A-2 details the April 2026 combined operations' results and Attachments A-3 to A-7 present budget comparisons for each MTS operation. Attachment A-8 details budget comparisons for MTS Administration, and Attachment A-9 provides April 2026 results for MTS's other activities (For Hire Vehicle Administration (FHV)/San Diego and Arizona Eastern Railway Company (SD&AE)).

MTS NET-OPERATING SUBSIDY RESULTS

As indicated within Attachment A-1, for the year-to-date period ending April 2026, MTS's net-operating income favorable variance totaled $137,000. Operations produced a $1,477,000 (-0.5%) unfavorable variance and the administrative/other activities areas were favorable by $1,614,000.

MTS COMBINED RESULTS

Operating Revenues. Year-to-date combined revenues through April 2026 were $94,167,000 compared to the year-to-date budget of $93,018,000, representing a $1,148,000 (1.2%) favorable variance. Year-to-date passenger revenue was favorable to budget by $306,000 (0.5%) through April. Passenger revenue is up by $2,918,000 (4.6%) versus the prior year.

Other operating revenue was favorable by $842,000 (3.2%), primarily due to favorable interest income and energy credit revenue. Energy credit revenue in April reflects the sale of 30,000

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state energy credits, generating $1,950,000. The sale price of $65 was slightly below the budgeted rate of $70.

Operating Expenses. Year-to-date combined expenses through April 2026 were $390,519,000 compared to the budget of $389,507,000, resulting in a $1,012,000 (-0.3%) unfavorable variance.

Personnel Costs. Year-to-date personnel-related costs totaled $167,980,000, compared to a budgetary figure of $168,632,000, producing a favorable variance of $653,000 (0.4%). This is primarily due to cost recovery Flagging reimbursement within Rail Operations, paid absences within Bus Operations, and Security wages within Administration, partially offset by unfavorable worker's compensation medical payments within Bus Operations.

Outside Services and Purchased Transportation. Outside services in total through April 2026 were $140,132,000, compared to a budget of $141,168,000, resulting in a favorable variance of $1,036,000 (0.7%). This is primarily due to favorable contract security services within Administration and performance bonuses within Fixed Route Operations.

Materials and Supplies. Total year-to-date materials and supplies expenses were $17,840,000, compared to a budgetary figure of $17,415,000, resulting in an unfavorable variance of $424,000 (-2.4%). This is primarily due to unfavorable revenue vehicle parts and maintenance supplies within Bus Operations. Parts costs continue to stay high for the maintenance of buses nearing retirement.

Energy. Total year-to-date costs were $42,294,000, compared to the budget of $42,720,000, resulting in a favorable variance of $427,000 (1.0%). This is primarily due to favorable rates versus budget. Compressed natural gas (CNG) is favorable due to both rate and consumption, and is expected to continue to be favorable through the rest of the fiscal year.

Risk Management. Total year-to-date expenses for risk management were $14,193,000 compared to the budget of $11,489,000, resulting in an unfavorable variance totaling $2,704,000 (-23.5%). This is primarily due to unfavorable claims payouts within Bus Operations. The FY 2026 amended budget assumed the usage of funds from MTS Self Insurance Reserve (SIR). The current variance does not represent any usage of the SIR to offset claim payouts as of April 2026.

General and Administrative. The year-to-date general and administrative costs were $6,087,000 through April 2026, compared to a budget of $6,097,000, resulting in a favorable variance of $10,000 (0.2%).

Vehicle and Facility Leases. The year-to-date vehicle and facilities lease costs were $1,994,000 compared to the budget of $1,985,000, resulting in an unfavorable variance of $8,000 (-0.4%).

YEAR-TO-DATE SUMMARY

The April 2026, year-to-date net-operating income totaled a favorable variance of $137,000. These factors include favorable variances in passenger revenue, other operating revenue, personnel costs, outside services, energy, and general and administrative, partially offset by unfavorable materials and supplies, risk management, and vehicle/facility leases.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachment: A. April FY26 Operating Budget Results

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

MTS
CONSOLIDATED

COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ 66,939	$ 66,633	$ 306	0.5%
Other Revenue	27,228	26,385	842	3.2%
Total Operating Revenue	**$ 94,167**	**$ 93,018**	**$ 1,148**	**1.2%**
Personnel costs	$ 167,980	$ 168,632	$ 653	0.4%
Outside services	140,132	141,168	1,036	0.7%
Materials and supplies	17,840	17,415	(424)	-2.4%
Energy	42,294	42,720	427	1.0%
Risk management	14,193	11,489	(2,704)	-23.5%
General & administrative	6,087	6,097	10	0.2%
Vehicle/facility leases	1,994	1,985	(8)	-0.4%
Administrative Allocation	(0)	(0)	(0)	0.0%
Total Operating Expenses	**$ 390,519**	**$ 389,507**	**$ (1,012)**	**-0.3%**
Operating Income (Loss)	**$ (296,352)**	**$ (296,489)**	**$ 137**	**0.0%**
Total Non-Operating Activities	**247**	**259**	**(12)**	**-4.6%**
Income (Loss) before Capital Contributions	**$ (296,105)**	**$ (296,230)**	**$ 125**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OPERATIONS
CONSOLIDATED

COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ 66,939	$ 66,633	$ 306	0.5%
Other Revenue	712	685	27	3.9%
Total Operating Revenue	**$ 67,651**	**$ 67,318**	**$ 332**	**0.5%**
Personnel costs	$ 137,895	$ 138,377	$ 482	0.3%
Outside services	114,946	115,410	464	0.4%
Materials and supplies	17,783	17,355	(428)	-2.5%
Energy	41,367	41,732	365	0.9%
Risk management	13,298	10,582	(2,716)	-25.7%
General & administrative	1,072	1,106	35	3.1%
Vehicle/facility leases	1,428	1,416	(11)	-0.8%
Administrative Allocation	35,045	35,045	(0)	0.0%
Total Operating Expenses	**$ 362,833**	**$ 361,023**	**$ (1,810)**	**-0.5%**
Operating Income (Loss)	**$ (295,182)**	**$ (293,705)**	**$ (1,477)**	**-0.5%**
Total Non-Operating Activities	**247**	**259**	**(12)**	**-4.6%**
Income (Loss) before Capital Contributions	**$ (294,935)**	**$ (293,446)**	**$ (1,489)**	**0.5%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OPERATIONS
BUS - DIRECTLY OPERATED (SAN DIEGO TRANSIT CORP.)
COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ 17,157	$ 17,151	$ 6	0.0%
Other Revenue	58	38	20	53.1%
Total Operating Revenue	**$ 17,215**	**$ 17,189**	**$ 26**	**0.2%**
Personnel costs	$ 83,872	$ 84,067	$ 195	0.2%
Outside services	1,964	2,059	96	4.6%
Materials and supplies	7,153	6,747	(406)	-6.0%
Energy	6,358	6,687	330	4.9%
Risk management	8,311	5,557	(2,754)	-49.6%
General & administrative	586	615	29	4.7%
Vehicle/facility leases	540	528	(12)	-2.2%
Administrative Allocation	6,620	6,620	(0)	0.0%
Total Operating Expenses	**$ 115,404**	**$ 112,882**	**$ (2,522)**	**-2.2%**
Operating Income (Loss)	**$ (98,189)**	**$ (95,693)**	**$ (2,496)**	**-2.6%**
Total Non-Operating Activities	**-**	**-**	**-**	**-**
Income (Loss) before Capital Contributions	**$ (98,189)**	**$ (95,693)**	**$ (2,496)**	**2.6%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OPERATIONS
RAIL (SAN DIEGO TROLLEY INC.)
COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ 27,448	$ 27,087	$ 361	1.3%
Other Revenue	654	648	7	1.0%
Total Operating Revenue	**$ 28,102**	**$ 27,734**	**$ 368**	**1.3%**
Personnel costs	$ 53,231	$ 53,508	$ 277	0.5%
Outside services	15,697	15,761	64	0.4%
Materials and supplies	10,514	10,499	(15)	-0.1%
Energy	26,875	26,439	(436)	-1.6%
Risk management	4,973	5,011	38	0.8%
General & administrative	472	476	3	0.7%
Vehicle/facility leases	566	565	(1)	-0.2%
Administrative Allocation	25,654	25,654	(0)	0.0%
Total Operating Expenses	**$ 137,981**	**$ 137,911**	**$ (69)**	**-0.1%**
Operating Income (Loss)	**$ (109,878)**	**$ (110,177)**	**$ 299**	**0.3%**
Total Non-Operating Activities	**-**	**-**	**-**	**-**
Income (Loss) before Capital Contributions	**$ (109,878)**	**$ (110,177)**	**$ 299**	**-0.3%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OPERATIONS
BUS - CONTRACTED SERVICES (FIXED ROUTE)
COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ 20,892	$ 20,952	$ (60)	-0.3%
Other Revenue	-	-	-	-
Total Operating Revenue	**$ 20,892**	**$ 20,952**	**$ (60)**	**-0.3%**
Personnel costs	$ 630	$ 637	$ 7	1.1%
Outside services	80,734	81,059	325	0.4%
Materials and supplies	116	109	(8)	-6.9%
Energy	7,057	7,378	321	4.3%
Risk management	-	-	-	-
General & administrative	10	11	2	14.6%
Vehicle/facility leases	36	37	1	3.5%
Administrative Allocation	2,299	2,299	(0)	0.0%
Total Operating Expenses	**$ 90,883**	**$ 91,531**	**$ 648**	**0.7%**
Operating Income (Loss)	**$ (69,991)**	**$ (70,579)**	**$ 588**	**0.8%**
Total Non-Operating Activities	**-**	**-**	**-**	**-**
Income (Loss) before Capital Contributions	**$ (69,991)**	**$ (70,579)**	**$ 588**	**-0.8%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OPERATIONS
BUS - CONTRACTED SERVICES (PARATRANSIT)
COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ 1,442	$ 1,443	$ (1)	-0.1%
Other Revenue	-	-	-	-
Total Operating Revenue	**$ 1,442**	**$ 1,443**	**$ (1)**	**-0.1%**
Personnel costs	$ 162	$ 165	$ 3	1.6%
Outside services	16,304	16,272	(33)	-0.2%
Materials and supplies	-	-	-	-
Energy	1,078	1,229	151	12.3%
Risk management	15	15	-	0.0%
General & administrative	4	4	1	17.2%
Vehicle/facility leases	285	286	0	0.1%
Administrative Allocation	471	471	0	0.0%
Total Operating Expenses	**$ 18,319**	**$ 18,441**	**$ 122**	**0.7%**
Operating Income (Loss)	**$ (16,877)**	**$ (16,997)**	**$ 120**	**0.7%**
Total Non-Operating Activities	**-**	**-**	**-**	**-**
Income (Loss) before Capital Contributions	**$ (16,877)**	**$ (16,997)**	**$ 120**	**-0.7%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OPERATIONS
CORONADO FERRY

COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ -	$ -	$ -	-
Other Revenue	-	-	-	-
Total Operating Revenue	**$ -**	**$ -**	**$ -**	**-**
Personnel costs	$ -	$ -	$ -	-
Outside services	247	259	12	4.6%
Materials and supplies	-	-	-	-
Energy	-	-	-	-
Risk management	-	-	-	-
General & administrative	-	-	-	-
Vehicle/facility leases	-	-	-	-
Administrative Allocation	-	-	-	0.0%
Total Operating Expenses	**$ 247**	**$ 259**	**$ 12**	**4.6%**
Operating Income (Loss)	**$ (247)**	**$ (259)**	**$ 12**	**4.6%**
Total Non-Operating Activities	**247**	**259**	**(12)**	**-4.6%**
Income (Loss) before Capital Contributions	**$ -**	**$ -**	**$ -**	**-**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

ADMINISTRATION
CONSOLIDATED

COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ -	$ -	$ -	-
Other Revenue	25,408	24,628	781	3.2%
Total Operating Revenue	**$ 25,408**	**$ 24,628**	**$ 781**	**3.2%**
Personnel costs	$ 29,509	$ 29,672	$ 162	0.5%
Outside services	24,665	25,264	599	2.4%
Materials and supplies	57	60	3	5.1%
Energy	922	983	60	6.1%
Risk management	812	822	10	1.2%
General & administrative	4,962	4,937	(25)	-0.5%
Vehicle/facility leases	545	546	1	0.1%
Administrative Allocation	(35,077)	(35,077)	0	0.0%
Total Operating Expenses	**$ 26,397**	**$ 27,207**	**$ 811**	**3.0%**
Operating Income (Loss)	**$ (988)**	**$ (2,580)**	**$ 1,591**	**61.7%**
Total Non-Operating Activities	**-**	**-**	**-**	**-**
Income (Loss) before Capital Contributions	**$ (988)**	**$ (2,580)**	**$ 1,591**	**-61.7%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

OTHER ACTIVITIES
CONSOLIDATED

COMPARISON TO BUDGET - FISCAL YEAR 2026
APRIL 30, 2026
(in $000's)

	YEAR TO DATE			
	ACTUAL	BUDGET	VARIANCE	VAR. %
Passenger Revenue	$ -	$ -	$ -	-
Other Revenue	1,107	1,072	35	3.3%
Total Operating Revenue	**$ 1,107**	**$ 1,072**	**$ 35**	**3.3%**
Personnel costs	$ 575	$ 584	$ 9	1.5%
Outside services	521	494	(27)	-5.4%
Materials and supplies	0	0	0	86.6%
Energy	4	5	1	22.5%
Risk management	82	84	2	1.8%
General & administrative	54	54	0	0.2%
Vehicle/facility leases	21	23	2	10.6%
Administrative Allocation	32	32	(0)	0.0%
Total Operating Expenses	**$ 1,289**	**$ 1,277**	**$ (12)**	**-1.0%**
Operating Income (Loss)	**$ (182)**	**$ (205)**	**$ 23**	**11.1%**
Total Non-Operating Activities	**-**	**-**	**-**	**-**
Income (Loss) before Capital Contributions	**$ (182)**	**$ (205)**	**$ 23**	**-11.1%**

Metropolitan Transit System

Agenda Item No. 18

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Microsoft Volume License Agreement (VLA) – Contract Award

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors authorize the Chief Executive Officer (CEO) to execute MTS Doc. No. G3209.0-26 (in substantially the same format as Attachment A), with Insight Public Sector, Inc. (Insight), in the amount of $1,831,320.24 for the provision of Microsoft software licensing subscriptions, support, and estimated as-needed licensing and support for three (3) years.

Budget Impact

The total cost of this contract is estimated to be $1,831,320.24. This project will be funded by the Information Technology (IT) Operation Budget as follows:

Description	Budget Account	Amount
Microsoft SaaS Subscription	661010-234000	$871,434.54
Microsoft Perpetual License Maintenance	661010-571250	$228,359.70
Microsoft Unified Support	661010-571250	$311,526.00
	Subtotal	**$1,411,320.24**
As-Needed Licensing	661010-571250	$300,000.00
As-Needed Proactive Support Services	661010-571250	$120,000.00
	Subtotal	**$420,000.00**
	Total:	**$1,831,320.24**

DISCUSSION:

MTS currently utilizes Microsoft VLA to manage all Microsoft software used throughout MTS for desktop, server, and database implementations. This software includes desktop/server operating systems (Windows), M365 (Exchange Online, Teams, SharePoint), database Structured Query Language (SQL), Microsoft Office products (Word, Excel, PowerPoint), and more. In addition, MTS employs Microsoft Unified Support services to ensure a swift resolution when issues arise with Microsoft products and services and to proactively support planned Microsoft-related project deployments. The basis of this agreement is to allow MTS to expand software application deployments to meet MTS demand and provide the mechanism to pay for as-needed additional licensing and proactive support services.

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On April 16, 2024, the County of Riverside (County) issued a Request for Quotes (RFQ) for Microsoft Enterprise Agreement Licensing Solution Providers (LSPs) Selection. The County procurement was a formal competitive bid process and developed explicitly for the use of California public/governmental agencies to reap the best pricing benefit based on the total volumes of Microsoft software licenses for the numerous agencies that are party to the County of Riverside Microsoft Agreement #8084445. The RFQ was accessed by fifty-eight (58) potential bidders, and the County received bids from seven (7) Microsoft LSPs. The County evaluated all bidders and awarded all seven (7) LSPs with a cooperative agreement to support the entire State of California.

On May 6, 2026, MTS issued an Invitation for Bid (IFB) requesting pricing for a three (3) year period for an estimated quantity of Microsoft licensing and support from the seven (7) LSPs that were qualified by the County to provide pricing for Microsoft Enterprise Agreement Licensing. By the bid due date of May 21, 2026, MTS received quotes from three (3) LSPs

Below is a summary of the bids received:

Bidder Name	Total Bid Amount	Certifications
MTS Independent Cost Estimate (ICE)	$1,202,085.32	N/A
Insight Public Sector, Inc.	**$1,411,320.24**	**N/A**
Crayon Software Experts, LLC	$1,412,714.97*	N/A
Zones IT Solutions, Inc.	$ 1,421,258.01	N/A

* *Crayon Software Experts, LLC bid form price was $1,412,624.19 due to mistake on the form. The correct bid price is stated here.*

Insight met all the solicitation requirements; therefore, staff deemed Insight to be the lowest responsive and responsible bidder. Their bid has been determined to be fair and reasonable based on a comparison of all bids received.

Therefore, staff recommends that the MTS Board of Directors authorize the CEO to execute MTS Doc. No. G3209.0-26 (insubstantially the same format as Attachment A) with Insight, in the amount of $1,831,320.24 for the provision of Microsoft software licensing subscriptions, support and estimated as-needed licensing and support for three (3) years.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. Draft Agreement, MTS Doc. No. G3209.0-26
B. Bid Form
C. Scope of Work

Metropolitan Transit System

STANDARD AGREEMENT
FOR

MTS DOC. NO. G3209.0-26

MICROSOFT VOLUME LICENSE AGREEMENT (VLA) 3 YEAR

THIS AGREEMENT is entered into this _____ day of _____, 2026 in the State of California by and between San Diego Metropolitan Transit System ("MTS"), a California public agency, and the following, hereinafter referred to as "Contractor":

Name: Insight Public Sector, Inc.

Address: 2701 E Insight Way
Chandler, AZ 85286

Form of Business: Corporation
(Corporation, Partnership, Sole Proprietor, etc.)

Email: Esther.chen@insight.com

Telephone: (310) 225-5055

Authorized person to sign contracts: Lisanne Steinheiser (Name) — Global Compliance Office (Title)

The Contractor agrees to provide services as specified in the conformed Scope of Work/Minimum Technical Specification (Exhibit A), Contractor's Bid/Pricing Form (Exhibit B), The County of Riverside signed Microsoft Agreement 8084445, as amended (Exhibit C), Microsoft Enterprise Enrollment (Exhibit D), in accordance with the Standard Agreement, including Standard Conditions (Exhibit E), Forms (Exhibit F).

If there are inconsistencies between the Contract Documents, the following order of precedence will govern the interpretation of this contract:

1. The terms and conditions of the Microsoft Agreement 8084445, the Microsoft Enterprise Enrollment, and the Microsoft Enterprise Signature form.
2. Standard Agreement, including the Standard Conditions.

The contract term is for three (3) years effective July 1, 2026 through June 30, 2029.

Payment terms shall be net 30 days from invoice date. The total cost of this contract shall not exceed $1,831,320.24 without the express written consent of MTS.

[Signature on following page]

DRAFT

SAN DIEGO METROPOLITAN TRANSIT SYSTEM	INSIGHT PUBLIC SECTOR, INC.
By: _____ Sharon Cooney, Chief Executive Officer Approved as to form: By: _____ Karen Landers, General Counsel	By _____ Title: _____

DRAFT

Metropolitan Transit System

MICROSOFT VOLUME LICENSE AGREEMENT (VLA) 3 YEAR - BID FORM - REV 5/8/2026

MTS Doc. No. G3209.0-26

Bidder Name: Insight Public Sector, Inc.

License Solution Provider (LSP) or Participating Agreement (PA) Reference No.: **COUNTY OF RIVERSIDE MICROSOFT LSP PRODUCTS AND SERVICES ID 1510001741**

*Please specify the reference number of the Cooperative Purchasing Agreement used as the basis of your bid.

Part Number	Item Description	Quantity	Unit of Measure	Unit Price	Extended Price
	Year 1 (7/1/2026-6/30/2027)				
	License Subscriptions				
TRA-00047	Exchange Online P1 Sub Per User	8	User	$ 36.51	$ 292.08
PEY-00002	GitHub Enterprise Sub Per User	4	User	$ 191.82	$ 767.28
83I-00001	M365 Copilot Sub Add-on	6	Each	$ 366.30	$ 2,197.80
AAD-33200	M365 E3 Unified FSA Sub Per User	360	User	$ 328.82	$ 118,375.20
AAD-33204	M365 E3 Unified Sub Per User	108	User	$ 386.81	$ 41,775.48
JFX-00003	M365 F3 FUSL Sub Per User	425	User	$ 85.96	$ 36,533.00
6WT-00001	O365 Extra File Storage Sub Add-on Extra Storage 1 GB	19000	GB	$ 2.20	$ 41,800.00
7LS-00002	Planner & Project P3 Sub Per User	17	User	$ 273.99	$ 4,657.83
SEJ-00002	Power Apps Premium Sub Per User	67	User	$ 214.90	$ 14,398.30
1O4-00001	Power Automate Premium Sub Per User	4	User	$ 161.17	$ 644.68
68B-00008	Power BI Premium USL Sub Per User	5	User	$ 219.17	$ 1,095.85
NK4-00002	Power BI Pro Sub Per User	178	User	$ 127.84	$ 22,755.52
NYG-00001	Teams AC with Dial Out US/CA Sub Add-on	986	User	$ -	$ -
V9B-00001	Teams Rooms Pro Sub Per Device	3	Device	$ 429.79	$ 1,289.37
N9U-00002	Visio P2 Sub Per User	18	User	$ 137.00	$ 2,466.00
QEJ-00003	Visual Studio Ent MSDN w/Github ALng SA	1	User	$ 1,077.53	$ 1,077.53
QEK-00001	Visual Studio Pro with GitHub ALng LSA	1	User	$ 352.26	$ 352.26
				Yr 1 Subscription Subtotoal	$ 290,478.18
	License Support and Maintenance				
W06-00021	Core CAL ALng SA DCAL	42	Each	$ 41.39	$ 1,738.38
7JQ-00343	SQL Server Enterprise Core ALng SA 2L	8	Each	$ 2,484.98	$ 19,879.84
7NQ-00292	SQL Server Standard Core ALng SA 2L	30	Each	$ 648.11	$ 19,443.30
KV3-00368	Win Enterprise Device ALng Upgrade SA	42	Each	$ 48.96	$ 2,056.32
6VC-01253	Win Remote Desktop Services CAL ALng SA DCAL	14	Each	$ 21.61	$ 302.54
9EA-00278	Win Server DC Core ALng SA 2L	12	Each	$ 139.19	$ 1,670.28
9EM-00270	Win Server Standard Core ALng SA 2L	1452	Each	$ 21.37	$ 31,029.24
				Yr 1 Maint Subtotal	$ 76,119.90
	Microsoft Unified Support				
	Unified Support	1	Each	$ 100,274.94	$ 100,274.94
				Year 1 Total	**$ 466,873.02**

Year 2 (7/1/2027-6/30/2028)					
License Subscriptions					
TRA-00047	Exchange Online P1 Sub Per User	8	User	$ 36.51	$ 292.08
PEY-00002	GitHub Enterprise Sub Per User	4	User	$ 191.82	$ 767.28
83I-00001	M365 Copilot Sub Add-on	6	Each	$ 366.30	$ 2,197.80
AAD-33200	M365 E3 Unified FSA Sub Per User	360	User	$ 328.82	$ 118,375.20
AAD-33204	M365 E3 Unified Sub Per User	108	User	$ 386.81	$ 41,775.48
JFX-00003	M365 F3 FUSL Sub Per User	425	User	$ 85.96	$ 36,533.00
6WT-00001	O365 Extra File Storage Sub Add-on Extra Storage 1 GB	19000	GB	$ 2.20	$ 41,800.00
7LS-00002	Planner & Project P3 Sub Per User	17	User	$ 273.99	$ 4,657.83
SEJ-00002	Power Apps Premium Sub Per User	67	User	$ 214.90	$ 14,398.30
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68B-00008	Power BI Premium USL Sub Per User	5	User	$ 219.17	$ 1,095.85
NK4-00002	Power BI Pro Sub Per User	178	User	$ 127.84	$ 22,755.52
NYG-00001	Teams AC with Dial Out US/CA Sub Add-on	986	User	$ -	$ -
V9B-00001	Teams Rooms Pro Sub Per Device	3	Device	$ 429.79	$ 1,289.37
N9U-00002	Visio P2 Sub Per User	18	User	$ 137.00	$ 2,466.00
QEJ-00003	Visual Studio Ent MSDN w/Github ALng SA	1	User	$ 1,077.53	$ 1,077.53
QEK-00001	Visual Studio Pro with GitHub ALng LSA	1	User	$ 352.26	$ 352.26
				Yr 2 Subscription Subtotoal	$ 290,478.18
License Support and Maintenance					
W06-00021	Core CAL ALng SA DCAL	42	Each	$ 41.39	$ 1,738.38
7JQ-00343	SQL Server Enterprise Core ALng SA 2L	8	Each	$ 2,484.98	$ 19,879.84
7NQ-00292	SQL Server Standard Core ALng SA 2L	30	Each	$ 648.11	$ 19,443.30
KV3-00368	Win Enterprise Device ALng Upgrade SA	42	Each	$ 48.96	$ 2,056.32
6VC-01253	Win Remote Desktop Services CAL ALng SA DCAL	14	Each	$ 21.61	$ 302.54
9EA-00278	Win Server DC Core ALng SA 2L	12	Each	$ 139.19	$ 1,670.28
9EM-00270	Win Server Standard Core ALng SA 2L	1452	Each	$ 21.37	$ 31,029.24
				Yr 2 Maint Subtotal	$ 76,119.90
Microsoft Unified Support					
	Unified Support	1	Each	$ 104,351.58	$ 104,351.58
				Year 2 Total	**$ 470,949.66**

Year 3 (7/1/2028-6/30/2029)					
License Subscriptions					
TRA-00047	Exchange Online P1 Sub Per User	8	User	$ 36.51	$ 292.08
PEY-00002	GitHub Enterprise Sub Per User	4	User	$ 191.82	$ 767.28
83I-00001	M365 Copilot Sub Add-on	6	Each	$ 366.30	$ 2,197.80
AAD-33200	M365 E3 Unified FSA Sub Per User	360	User	$ 328.82	$ 118,375.20
AAD-33204	M365 E3 Unified Sub Per User	108	User	$ 386.81	$ 41,775.48
JFX-00003	M365 F3 FUSL Sub Per User	425	User	$ 85.96	$ 36,533.00
6WT-00001	O365 Extra File Storage Sub Add-on Extra Storage 1 GB	19000	GB	$ 2.20	$ 41,800.00
7LS-00002	Planner & Project P3 Sub Per User	17	User	$ 273.99	$ 4,657.83
SEJ-00002	Power Apps Premium Sub Per User	67	User	$ 214.90	$ 14,398.30
1O4-00001	Power Automate Premium Sub Per User	4	User	$ 161.17	$ 644.68
68B-00008	Power BI Premium USL Sub Per User	5	User	$ 219.17	$ 1,095.85
NK4-00002	Power BI Pro Sub Per User	178	User	$ 127.84	$ 22,755.52
NYG-00001	Teams AC with Dial Out US/CA Sub Add-on	986	User	$ -	$ -
V9B-00001	Teams Rooms Pro Sub Per Device	3	Device	$ 429.79	$ 1,289.37
N9U-00002	Visio P2 Sub Per User	18	User	$ 137.00	$ 2,466.00
QEJ-00003	Visual Studio Ent MSDN w/Github ALng SA	1	User	$ 1,077.53	$ 1,077.53
QEK-00001	Visual Studio Pro with GitHub ALng LSA	1	User	$ 352.26	$ 352.26
				Yr 3 Subscription Subtotoal	$ 290,478.18
License Support and Maintenance					
W06-00021	Core CAL ALng SA DCAL	42	Each	$ 41.39	$ 1,738.38
7JQ-00343	SQL Server Enterprise Core ALng SA 2L	8	Each	$ 2,484.98	$ 19,879.84
7NQ-00292	SQL Server Standard Core ALng SA 2L	30	Each	$ 648.11	$ 19,443.30
KV3-00368	Win Enterprise Device ALng Upgrade SA	42	Each	$ 48.96	$ 2,056.32
6VC-01253	Win Remote Desktop Services CAL ALng SA DCAL	14	Each	$ 21.61	$ 302.54
9EA-00278	Win Server DC Core ALng SA 2L	12	Each	$ 139.19	$ 1,670.28
9EM-00270	Win Server Standard Core ALng SA 2L	1452	Each	$ 21.37	$ 31,029.24
				Yr 3 Maint Subtotal	$ 76,119.90
Microsoft Unified Support					
	Unified Support	1	Each	$ 106,899.48	$ 106,899.48
				Year 3 Total	**$ 473,497.56**
				(BASIS OF AWARD) 3 YEARS GRAND TOTAL (All Inclusive of all charges):	**$ 1,411,320.24**

BIDDER ACCEPTS RESPONSIBILITY FOR ACCURACY AND PRESENTATION OF THE ABOVE NUMBERS.

In the case of calculation errors, unit prices will prevail. ***Unit prices shall be rounded to the nearest cent.*** *The above quantities are for bidding pruposes only and are based on MTS' current usage. They represent what MTS anticipates as a requirement, but MTS does not guarantee this quantity. The actual quantity ordered may be more or less than what is anticipated on the pricing form, and it is dictated by MTS actual requirements and the available funding at the time each order is initiated.*

1. SCOPE OF WORK/TECHNICAL SPECIFICATIONS

1.1. INTRODUCTION

MTS will renew its Microsoft VLA to continue the use of Microsoft products to support business operations and systems. Microsoft Unified Support will also be renewed under this agreement so MTS can have reliable support available to address any potential issues promptly and minimize downtime.

MTS has established direct collaboration with Microsoft to obtain the specific SKUs required and outlined in this Scope of Work (SOW). This request pertains exclusively to the procurement of the SKU explicitly recommended by Microsoft, which is detailed in the technical specifications below.

1.2. BACKGROUND

MTS currently utilizes Microsoft VLA to manage all Microsoft software used throughout MTS for desktop, server, and database implementations. This software includes desktop/server operating systems (Windows), M365 (Exchange Online, Teams, SharePoint), database Structured Query Language (SQL), Microsoft Office products (Word, Excel, PowerPoint), and more.

Microsoft Unified Support is a comprehensive, all-inclusive support model for enterprise customers, covering all Microsoft products and cloud services (Azure, Office 365, etc.). It provides 24/7 technical support, rapid response times, and proactive services to enhance IT operations.

1.3. TECHNICAL SPECIFICATIONS

SKU	Item Description	Quantity
TRA-00047	Exchange Online P1 Sub Per User	8
PEY-00002	GitHub Enterprise Sub Per User	4
83I-00001	M365 Copilot Sub Add-on	6
AAD-33200	M365 E3 Unified FSA Sub Per User	360
AAD-33204	M365 E3 Unified Sub Per User	108
JFX-00003	M365 F3 FUSL Sub Per User	425
6WT-00001	O365 Extra File Storage Sub Add-on Extra Storage 1 GB	19000
7LS-00002	Planner & Project P3 Sub Per User	17
SEJ-00002	Power Apps Premium Sub Per User	67
1O4-00001	Power Automate Premium Sub Per User	4
68B-00008	Power BI Premium USL Sub Per User	5
NK4-00002	Power BI Pro Sub Per User	178
NYG-00001	Teams AC with Dial Out US/CA Sub Add-on	986
V9B-00001	Teams Rooms Pro Sub Per Device	3
N9U-00002	Visio P2 Sub Per User	18
QEJ-00003	Visual Studio Ent MSDN w/Github ALng SA	1
QEK-00001	Visual Studio Pro with GitHub ALng LSA	1
W06-00021	Core CAL ALng SA DCAL	42

7JQ-00343	SQL Server Enterprise Core ALng SA 2L	8
7NQ-00292	SQL Server Standard Core ALng SA 2L	30
KV3-00368	Win Enterprise Device ALng Upgrade SA	42
6VC-01253	Win Remote Desktop Services CAL ALng SA DCAL	14
9EA-00278	Win Server DC Core ALng SA 2L	12
9EM-00270	Win Server Standard Core ALng SA 2L	1452
	Unified Support	1

1.4. GENERAL REQUIREMENTS

The vendor shall be a certified reseller of Microsoft Enterprise License and Software Assurance Subscription services or products and be in good standing as a Licensing Solution Providers (LSP) of Microsoft products.

1.5. PRICING

The prices provided in the bidder's table shall remain constant for the duration of the contract and shall be inclusive of all costs. There shall be no price adjustments during the term of the contract. Bids submitted shall be based on the valid County of Riverside, CA and Microsoft Corporation Enterprise Agreement.

A copy of the bidder's License Solution Provider (LSP) or Participating Agreement to Riverside County Master Agreement should be included and referenced in the Bid Form submission.

1.6. TARIFFS

All quoted pricing should be "EXCLUSIVE" of tariffs. In the event there are tariffs imposed across any items under this contract, the Contractor may request separate payment through the submission of CBP Form 7501 outlining the HTSUS rate (Box 33) and Duty charged (Box 34) for the description (Box 28) and quantity (Box 30 & 31) of the item which should match the MTS Purchase Order particulars.

Tariff charges may be invoiced under a separate charge to each purchase order once approved by MTS.

1.7. INVOICES

Invoices must be sent to the MTS Accounting Department, via email, at ap@sdmts.com. All invoices must have the Purchase Order and contract number clearly displayed to ensure timely payment. MTS will not pay on packing slips, receiving documents, delivery documents, or other similar documents. Invoices must be submitted for payment.

Payment terms shall be net 30 days from invoice date. If MTS rejects an incorrectly submitted invoice and sends it back for correction, the net 30 days restart from the corrected invoice date.

Contractors must also indicate if any of the invoiced amount(s) is for service or work provided by a subcontractor and indicate the amount that will be paid to the subcontractor. Contractors must also comply with the prompt payment requirements in the *Prompt Progress Payments* section of the Standard Conditions.

1.8. [NOT APPLICABLE] PAYMENT PROCESSING SECURITY AND PAYMENT CARD INDUSTRY (PCI) DATA SECURITY STANDARD (DSS) COMPLIANCE

1.9. [NOT APPLICABLE] HEWLETT PACKARD ENTERPRISE (HPE) MINIMUM REQUIREMENTS

1.10. [NOT APPLICABLE] CISCO MINIMUM REQUIREMENTS

1.11. [NOT APPLICABLE] CONTRACTOR'S INFORMATION SECURITY RESPONSIBILITIES

1.12. [NOT APPLICABLE] SAFETY DATA SHEETS (SDS)

1.13. [NOT APPLICABLE] NO RIGHT TO POST SIGNS

1.14. [NOT APPLICABLE] WARRANTY

1.15. [NOT APPLICABLE] REPLACEMENT PARTS

1.16. DELIVERY AND ACCEPTANCE

The current agreement expires on June 30, 2026 so this renewal should be effective July 1, 2026 to June 30, 2029. After the VLA is renewed, MTS will confirm its completion by ensuring that the correct quantities for the subscription based products are accurately reflected in the Microsoft 365 Admin Center.

1.17. [NOT APPLICABLE] LIQUIDATED DAMAGES

Metropolitan Transit System

Agenda Item No. 19

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Public Hearing: Assembly Bill (AB) 2561 (McKinnor): Status of Vacancies, Recruitment and Retention (Thuy Nguyen)

INFORMATIONAL ONLY

Budget Impact

None.

DISCUSSION:

In accordance with California AB 2561 (McKinnor), this report is presented to provide transparency into current staffing levels, recruitment efforts, and retention strategies across the agency. The bill requires public agencies to present this information at a public hearing at least once per fiscal year and, if vacancies within a single bargaining unit meet or exceed 20% of authorized full-time positions, to include additional specified information upon request of the recognized employee organization.

As MTS continues to navigate a constrained fiscal environment, staffing decisions reflect a deliberate balance between maintaining operational continuity and exercising fiscal responsibility. While overall staffing levels are continuously evaluated in alignment with budget constraints, maintaining adequate coverage in mission-critical roles remains essential to sustaining service levels, minimizing overtime, and protecting long-term organizational efficiency.

MTS does not currently have any bargaining units with vacancy rates that meet or exceed the 20% threshold outlined in AB 2561. The table below summarizes the aggregate vacancy rates by bargaining unit and compares vacancy levels reported in 2025 to current rates in 2026.

	Aggregate Vacancy Rate 2025	Aggregate Vacancy Rate 2026
Amalgamated Transit Union (ATU)	5.4%	-1.5%
International Association of Sheet Metal, Air, Rail, and Transportation Workers (SMART)	4.1%	0.3%
International Brotherhood of Electrical Workers (IBEW)	4.9%	7.1%
Transit Enforcement Officers Association (TEOA)	6.8%	16.5%
International Brotherhood of Electrical Workers (IBEW) (Construction Safety Flagpersons)	12.9%	8.0%

Although none of the bargaining units currently meet the statutory threshold, MTS is providing additional context by highlighting several classifications that have historically been more challenging to recruit. Reporting on these positions also provides an opportunity to update the Board on staffing progress since last year's report.

Below are MTS's historically most difficult-to-fill positions and their current vacancy rates, along with a comparison to the prior year. Overall, vacancy levels have improved across most classifications, including significant reductions in the Assistant Lineman classifications and stabilization of Bus Operator staffing levels.

Classification	2025 Budget	2025 Actual	2025 Vacancy	2026 Budget	2026 Actual	2026 Vacancy
San Diego Transit Corp.						
Bus Operator	500	476	4.8%	490	495	-1.0%
Mechanic*	163	153	6.1%	163	152	6.7%
San Diego Trolley, Inc.						
Light Rail Vehicle (LRV) Assistant Lineman**	89	72	19.1%	89	88	1.1%
Maintenance of Way (MOW) Assistant Lineman**	36	27	25.0%	36	35	2.8%
Construction Safety Flagperson	42.5	37	12.9%	43.5	40	8.0%
Code Compliance Inspectors (CCI)	95	90	5.3%	90	76	15.6%

**The Mechanic Full Time Employees (FTE) counts include total allotments for the positions these roles advance from and into (Servicer A, Apprentices, Mechanic A-C) based on interest, completed qualifications, and tenure.*

***The LRV and MOW Assistant Lineman FTE counts include the total allotments for the positions these roles advance into (Lineman and Electromechanics) based on completed education requirements and tenure.*

Bus Operator

Since 2021, the Bus Operator position has been the most challenging to fill. Over the past year, however, staffing levels have stabilized and the vacancy rate has significantly improved as a result of continued recruitment efforts and operational adjustments.

Historically, shortages in this classification have been influenced by a combination of factors, including demographic trends, labor market competition, and the demanding nature of the profession. While these factors are still prevalent, we have made significant progress in stabilizing staffing levels for Bus Operators compared to prior years as reflected in the vacancy comparison table above.

Bus Operator Recruitment and Staffing Improvements

Over the past several years, MTS implemented a number of compensation, recruitment, and workplace improvements to strengthen interest in the Bus Operator position. These efforts have contributed to a stronger applicant pool and improved staffing levels.

MTS now receives approximately 150 (vs. 120 in 2025) applications per month for the Bus Operator position. This consistent level of interest has allowed recruitment efforts to remain steady while maintaining a strong pipeline of qualified candidates.

As staffing levels have improved, the training program has naturally transitioned away from the accelerated hiring cycles used during periods of higher vacancies. Training classes are now scheduled less frequently (approximately every 6 weeks vs. 3 weeks in 2025) and with smaller class sizes (approximately 10 – 15 vs. 15 – 20 in 2025), allowing for improved instructor-to-student ratios, greater focus on training quality, and long-term operator success.

Recruitment efforts remain active through ongoing marketing, outreach, and streamlined hiring processes to ensure MTS maintains a sustainable pipeline of qualified Bus Operator candidates.

LRV Assistant Lineman and MOW Assistant Lineman

The LRV and MOW Assistant Lineman positions serve as the entry-level roles into MTS's apprenticeship program. After completing required classroom and on-the-job training milestones, employees progress to Lineman and ultimately Electromechanic. LRV Assistant Linemen primarily inspect and repair light rail vehicles, while MOW Assistant Linemen perform electrical work on the right-of-way.

As reflected in the vacancy comparison table above, MTS has made significant progress in reducing vacancy rates for these classifications. In 2025, the vacancy rate for LRV Assistant Lineman and MOW Assistant Lineman positions was 19.1% and 25.0%, respectively. In 2026, vacancy rates have decreased to 1.1% and 2.8%, demonstrating substantial improvement in staffing levels.

Historically, recruitment for these classifications has been challenging due to the technical nature of the work and the demands of the apprenticeship program. Employees must work full-time schedules, including nights, weekends, and holidays, while also completing coursework through MTS's community college partners.

LRV and MOW Assistant Lineman Recruitment and Staffing Improvements

Over the past several years, MTS has taken a strategic approach to strengthening the talent pipeline for these positions. Competitive compensation negotiated through the SMART collective bargaining agreement, along with ongoing recruitment outreach and workforce development partnerships, have helped increase interest in these careers.

In addition, targeted marketing efforts and improvements to the recruitment process have enabled MTS to more effectively attract qualified applicants and maintain a steady pipeline of candidates. These efforts have allowed MTS to stay ahead of normal attrition and significantly reduce vacancy levels in these classifications.

MTS continues to maintain partnerships with workforce development organizations and educational institutions to promote career pathways into the apprenticeship program and support long-term workforce sustainability.

Construction Safety Flagperson

Construction Safety Flagpersons work on or near trolley tracks to protect construction personnel and their equipment while ensuring the safe passage of trains. There are currently 12 full-time and 63 part-time positions supporting these operations.

As reflected in the vacancy comparison table above, staffing levels for this classification have improved since last year's report. In 2025, the vacancy rate for Construction Safety Flagpersons was 12.9%, and in 2026 the vacancy rate has decreased to 8.0%.

Historically, recruitment for this position has presented challenges similar to other front-line operational roles. The work requires employees to perform safety-sensitive duties in an outdoor environment while coordinating closely with rail operations and construction crews.

Flagperson Recruitment and Staffing Improvements - Changes Implemented Since Last Year's Report:

Since the prior report, MTS and IBEW successfully negotiated a successor collective bargaining agreement, which included several compensation improvements for Construction Safety Flagpersons aimed at strengthening recruitment and retention.

Key changes include:

- Base wage increased to $22.70/hour effective July 2025
- 4% wage increases scheduled for April 2026 and April 2027
- Expanded night shift differential pay, including:
    - $0.50/hour for qualifying night shifts beginning January 2026
    - Increasing to $1.00/hour in January 2027
    - Night shift eligibility expanded to shifts starting after 6:00 p.m.
- $1.00/hour premium when serving as an On-The-Job Trainer

In addition to these compensation improvements, MTS continues to strengthen recruitment pipelines for this classification through community partnerships and targeted outreach efforts. Partnerships with organizations such as Vantage Inc. and Second Chance help connect MTS

with candidates interested in entering the transit workforce through established workforce development programs.

These efforts, combined with broader recruitment initiatives and compensation improvements, have helped MTS improve staffing levels and better manage attrition in this classification.

Mechanic Classifications

Mechanic classifications (Servicer A, Apprentices, A–C) are included this year to provide additional visibility into key maintenance roles that support daily bus fleet operations. These classifications were not highlighted in last year's report, as Servicer A staffing levels were above budget, while Mechanic vacancies were primarily driven by internal progression constraints rather than overall staffing levels.

As reflected in the vacancy comparison table above, the current vacancy rate is 6.7% (compared to 6.1% in 2025). Although staffing levels were relatively stable at this time last year, recruitment for skilled maintenance positions is becoming increasingly competitive. Similar to LRV and MOW classifications, these roles operate within a tight trade labor market where agencies and other industries compete for experienced technicians, while retirements among seasoned employees continue to create natural turnover.

An additional challenge for the Mechanic classification is that vacancies are not filled through external hiring and instead rely on internal promotion from Servicer A, based on tenure and interest. As experienced Mechanics retire or separate, there is a natural lag in backfilling these roles, as it takes time for Servicer A employees to complete the apprenticeship program. As a result, current challenges are more reflective of timing and pipeline development rather than a lack of available candidates.

Code Compliance Inspector (CCI)

While CCI vacancy data was included in last year's reporting, it was not expanded upon due to the relatively low vacancy rate of 5.3% and the classification historically being easier to fill. However, in 2026, the vacancy rate has increased to 15.6%, largely due to employees transitioning into law enforcement agencies, a common career path for this role. And similar to Bus Operators, training classes have been reduced in size (approximately 6 vs. 10 in 2025) to improve instructor-to-student ratios and overall training quality. While this limits the pace of hiring due to training capacity constraints, it is a deliberate tradeoff to support retention and long-term cost efficiency.

CCI Recruitment and Staffing Improvements

Since the prior report, MTS and TEOA successfully negotiated a successor collective bargaining agreement, which included several compensation improvements for CCIs aimed at strengthening recruitment and retention.

Key changes include:

- Base wage increased to $25.52/hour effective February 2026
- 4% wage increases scheduled for March 2027 and March 2028

These compensation improvements, supported by broader recruitment initiatives, place MTS in a strong position to improve staffing levels and manage attrition in this classification.

Overall Recruitment Strategy

As reported last year, MTS maintains a comprehensive recruitment strategy focused on increasing brand awareness and attracting qualified candidates across all classifications. Recruitment activities are regularly evaluated to identify effective outreach methods and adjust strategies as needed in response to labor market conditions.

Key components of these efforts include:

- Participating in approximately 50 local job fairs annually, with projected attendance exceeding 70 events this year, where HR staff and representatives from departments such as LRV, MOW, and other operational divisions engage directly with job seekers and share information about career opportunities at MTS.

- Distributing current job openings to a network of more than 300 community contacts, including educational institutions, workforce development organizations, rehabilitation centers, military and veteran organizations, Employment Development Department (EDD) partners, and disability support programs.

- Leveraging internal marketing efforts, as well as external job boards and targeted advertisements, to increase visibility of career opportunities and attract qualified applicants.

These efforts help maintain visibility in the labor market and support a steady pipeline of candidates for positions across the agency.

Conclusion

MTS has made measurable progress in stabilizing staffing levels across key classifications while continuing to refine recruitment and retention strategies. While challenges remain in certain labor markets, the agency is well-positioned to maintain service levels through a balanced approach that prioritizes operational needs, workforce sustainability, and fiscal stewardship amid ongoing budget constraints.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Metropolitan Transit System

Assembly Bill 2561 (AB 2561) Status of Vacancies, Recruitment and Retention

Board of Directors

Overview of AB 2561

- AB 2561 (McKinnor) requires public agencies to provide an annual public update on:
  - Vacancies
  - Recruitment efforts
  - Retention strategies
- Additional reporting is required if vacancies within a single bargaining unit reach 20% or more of authorized full-time positions.
- MTS does not currently have any bargaining units meeting the 20% threshold.

Current Vacancy Rates by Bargaining Unit

	Aggregate Vacancy Rate 2025	Aggregate Vacancy Rate 2026
Amalgamated Transit Union (ATU)	5.4%	**-1.5%**
International Association of Sheet Metal, Air, Rail, and Transportation Workers (SMART)	4.1%	**0.3%**
International Brotherhood of Electrical Workers (IBEW)	4.9%	**7.1%**
Transit Enforcement Officers Association (TEOA)	6.8%	**16.5%**
International Brotherhood of Electrical Workers (IBEW) (Construction Safety Flagpersons)	12.9%	**8.0%**

Most Challenging Positions to Fill

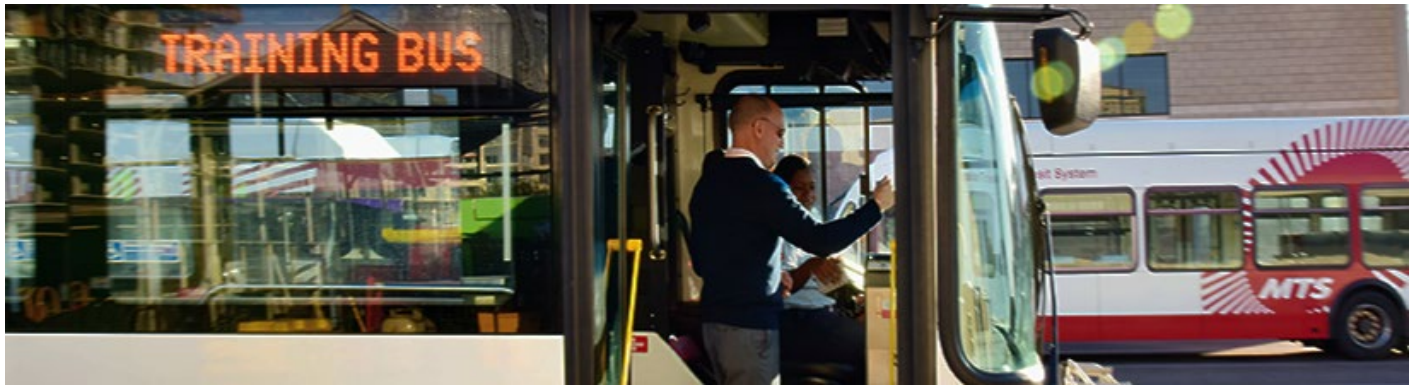
Classification	2025 Budget	2025 Actual	2025 Vacancy	2026 Budget	2026 Actual	2026 Vacancy
San Diego Transit Corp.						
Bus Operator	500	476	4.8%	490	495	**-1.0%**
Mechanic*	163	153	6.1%	163	152	**6.7%**
San Diego Trolley, Inc.						
LRV Assistant Lineman**	89	72	19.1%	89	88	**1.1%**
MOW Assistant Lineman**	36	27	25.0%	36	35	**2.8%**
Construction Safety Flagperson	42.5	37	12.9%	43.5	40	**8.0%**
Code Compliance Inspectors	95	90	5.3%	90	76	**15.6%**

**The Mechanic FTE counts include total allotments for the positions these roles advance from and into (Servicer A, Apprentices, Mechanic A-C) based on interest, completed qualifications, and tenure.*

***The LRV and MOW Assistant Lineman FTE counts include the total allotments for the positions these roles advance into (Lineman and Electromechanic) based on completed education requirements and tenure.*

Common Staffing Challenges Across Classifications

- Competitive labor markets and skilled trade shortages
- Retirement and attrition trends
- Demanding schedules, including nights, weekends, and holidays
- Training, certification and apprenticeship pipelines
- Balancing operational needs, training quality, and long-term retention



Recruitment & Retention Efforts

- Increased outreach, recruitment marketing, and community engagement
- Partnerships with workforce development and educational organizations
- Streamlined hiring and onboarding processes
- Ongoing evaluation of training class sizes and hiring cadence
- Compensation enhancements supporting recruitment and retention efforts



Conclusion

- Staffing levels have stabilized or improved across most historically difficult-to-fill classifications.
- MTS continues balancing operational needs, workforce sustainability, training quality, and fiscal responsibility.
- Recruitment, retention, and workforce development efforts will continue to support long-term service reliability.



Questions/Comments

Metropolitan Transit System

Agenda Item No. 20

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Fiscal Year (FY) 2027 Operating Budget Discussion (Gordon Meyer)

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors:

1) Receive testimony, review, and comment on the FY 2027 MTS Operating Budget at a public hearing; and

2) Enact Resolution No. 26-08 (in substantially the same format as Attachment B) adopting the FY 2027 operating budget for the MTS, San Diego Transit Corporation (SDTC), San Diego Trolley (SDTI), San Diego & Arizona Eastern Railway Co. (SDAE), MTS Contract Services, and the Coronado Ferry.

Budget Impact

Board adoption would establish the FY 2027 operating budget totaling $482.5 million.

DISCUSSION:

Fiscal Year 2027 Budget Process

The following is a recap of the FY 2027 budget process:

MTS uses a zero-based budgeting process that begins in January each year. In MTS's process, every budget line-item is reviewed and approved each year. Department managers complete budget templates in which they propose amounts for each line item, submitted with the appropriate supporting details for each assumption (in contrast, with a traditional historic budgeting process, managers only justify variances versus prior year budget; the assumption is that the baseline is automatically approved). Meetings are held with each department to validate their assumptions, review proposals versus existing spending trends, and review any new initiatives. This collaborative process results in the assumptions that are then presented to and reviewed by senior management at MTS, the Executive Committee (EC), and ultimately the MTS Board.

On March 12, 2026 (Agenda Item (AI) 4), staff met with the EC and reviewed and recommended approval of the FY 2026 midyear operating budget amendment and the FY 2027 Capital

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

Improvement Program (CIP). Staff also presented preliminary expense and revenue assumptions for the FY 2027 operating budget during this meeting.

On March 19, 2026 (AI 16 and 17), staff met with the Board. During this meeting, staff reviewed and received Board approval of the FY 2026 amended operating budget and the FY 2027 CIP.

On April 9, 2026 (AI 4), staff met with the EC and reviewed an initial draft of the operating budget. During this meeting, feedback was provided by the EC on the proposed merit increases for non-represented personnel, and staff was asked to return to the EC with analysis of two alternate proposals that were discussed.

On May 14, 2026 (AI 4) staff presented an updated draft of the operating budget to the EC. The updated draft reflected final service levels, the projected impact of the fare increase, and other expense and revenue adjustments based on updated assumptions. Staff also presented an analysis of the cost implications for the three non-represented personnel proposals discussed at the April 9 meeting and requested direction from the EC on which option to reflect in the budget. After further discussion, the EC recommended a 4.0% merit pool for all non-represented personnel with further discussion with the full Board on May 21. The EC directed staff to also provide the Board with information and analysis regarding three options for the non-represented personnel costs: the 4.0% merit increase option (EC's recommendation to the Board), the original staff proposal (zero growth strategy), and the 4% bonus payment in lieu of merit increase option.

On May 21, 2026 (AI 5) staff presented an updated draft of the operating budget which reflected the EC recommendation of 4.0% merit increases for non-represented (non-union) employees. The two alternatives recommended for discussion by the EC were also reviewed. Staff also updated the passenger revenue forecast to reflect the fare increase being considered by the San Diego Association of Governments (SANDAG) Transportation Committee starting on October 1, 2026 rather than September 1, 2026 in the prior draft.[1] During this meeting, there was significant discussion on whether the potential fare increase should be included in the budget and requests for additional information. The ultimate decision was to bring two drafts of the budget for consideration at a special budget workshop meeting June 11, 2026.

The scheduled June 11, 2026 EC meeting was changed to be a special Board Budget Workshop to further discuss the FY 2027 budget. During this meeting, staff presented a comprehensive review of the current financial status and current Board direction, the history of how we arrived at our current financial status (stagnant revenues, growing expenses), a discussion of how these problems are impacting the industry nationwide, and the path forward in terms of long term direction and the need for passing a budget for FY 2027. For this meeting, two draft budgets were provided with the only difference being in passenger revenue and subsidy funding. Version 1 included the projected impact of the proposed fare increase and required less Senate Bill 125 TIRCP (SB 125) funding to balance the budget. Version 2 did not reflect the proposed fare increase and required additional SB 125 funding to balance the budget. During the meeting, the Board recommended Version 2, budget draft that does not include increased revenue assumptions from the proposed fare changes, to create a Fare Freeze Program for Vulnerable Low-Income Riders, and for staff to prepare a report on non-fare revenue details during the next mid-year budget amendment.

Today's proposed action includes Version 2 draft of the budget that was presented at the budget workshop on June 11, 2026. There have been no additional changes to the budget since

[1] The first reading of the proposed revisions to the Comprehensive Fare Ordinance (CFO), including a proposed fare increase, was conducted by the SANDAG Transportation Committee on June 12, 2026. It is scheduled for a vote on adoption at the Transportation Committee's July 17, 2026 meeting.

that meeting. The final budget presentation and public hearing covers the final proposed position table changes, salary grades, expense and revenue summaries, and five-year forecast.

Public notice of this budget hearing was posted as required by Public Utilities Code section 120106. The agency's FY 2027 budget needs to be approved no later than July 1, 2027 (the first date of FY 2027).

Fiscal Year 2027 Operating Budget

The FY 2027 total budgeted revenue is projected at $482.5 million, and total expenses are projected at $482.5 million, resulting in a balanced budget for FY 2027. Attachment A details the proposed FY 2027 Operating Budget.

Fiscal Year 2027 Revenues

Section 3.02 of Attachment A summarizes the total operating and non-operating revenues in a schedule format. As indicated within the schedule, FY 2027 combined revenues total $482.5 million, an increase from the FY 2026 amended budget of $11.4 million (2.4%).

Operating Revenue

Operating revenue totals $116.5 million, an increase from the FY 2026 amended budget of $2.2 million (1.9%).

Passenger revenues are projected to be $83.0 million, an increase of $2.2 million (2.7%) from the FY 2026 amended budget. The forecast is based on projected ridership of 83.1 million passengers and an average fare of $1.00. The ridership target represents 2.8% growth over the FY 2026 amended budget target. The average fare of $1.00 represents no change from the FY 2026 amended budget and does not reflect any impact from the fare study or the potential fare increase under consideration by the SANDAG Transportation Committee. It also does not include any projections of the cost Fare Freeze Program for Vulnerable Low-Income Riders that the Board directed staff to develop and implement at the June 11, 2026 meeting.

Other operating revenues are projected to increase by $12,000 in total.

Within other operating revenues, energy credit revenue is increasing $2.4 million (22.6%) primarily due to reflecting a full year of higher credit generation for Trolley traction power (due to the Low Carbon Fuel Standard (LCFS) program change) as well as the projected sale of 60,000 banked credits.

Advertising revenue is projected to increase $922,000 (14.7%), primarily due to higher revenue generation from the Gaslamp digital billboard as well as a variety of new advertising initiatives being developed by the Marketing department.

Real-estate revenues are projected to increase $151,000 (3.2%), primarily due to significant increases in right-of-entry permit fees to fully recover permit processing costs.

The increases above are mostly offset by a projected decrease in interest revenue of $4.0 million (-52.1%). Unrestricted cash balances are expected to decline over time as the remainder of the operating deficit reserve will be used by the end of FY 2026. Interest rates are projected at 3.4% for the year, down from 3.6% assumed in the FY 2026 amended budget.

Non-Operating Revenue

Non-operating revenue totals $366.0 million, an increase from the FY 2026 amended budget of $9.2 million (2.6%). Non-operating revenue includes both subsidy revenue and other revenue (reserves) as detailed Section 3.02 of Attachment A.

Federal Transit Administration (FTA) funding is structured on a reimbursement basis (after expenses are incurred), and funds both the CIP and operating budgets. MTS's share of recurring federal revenue in the operating budget is expected to increase by $6.0 million (7.5%) from the FY 2026 amended budget due to increasing the preventive maintenance funds in the operating budget. Within federal revenues, the FY 2027 budget also reflects $500,000 in non-recurring discretionary grant revenue ($200,000 for canine security patrols and $300,000 for the Otay Mesa Planning Study). Overall federal funds are projected at $85.5 million in FY 2027, an increase of $6.1 million (7.7%) from the FY 2026 amended budget.

Regional sales tax revenues (Transportation Development Act (TDA) and TransNet) in the MTS operating budget are expected to increase by $32.5 million (17.7%) year over year for FY 2027, as a result of both sales tax growth and shifting an additional $25 million in TDA revenue from the capital budget to operations ($50 million in total TDA shifted from capital to operations in FY 2027 versus $25 million in FY 2026). Regional sales tax receipts are projected to increase in FY 2027 based on forecasts provided by the SANDAG.

Regional TDA cash receipts are projected to increase 1.0% versus FY 2026 projected cash receipts. MTS files an annual TDA claim based on SANDAG's projections, and that claim amount is the amount received, regardless of actual sales tax performance. If sales tax receipts end up higher than the claim amount, excess funds are stored in a reserve at the County of San Diego (County). If sales tax receipts come in lower than the claim amount, funds are drawn from the County reserve. The overall amount of TDA projected for FY 2027, available for both capital and operations, is increasing by $3.1 million (2.3%) from the FY 2026 amended budget based on SANDAG's projections. TDA revenue in the operating budget is increasing by $26.7 million (25.0%) from the FY 2026 amended budget, after shifting an additional $25.0 million from capital to operations.

Regional TransNet cash receipts are expected to grow by 2.1% based on SANDAG's current forecast. TransNet revenue in the MTS operating budget is projected to increase by $5.8 million (7.5%) versus the FY 2026 amended budget. Unlike TDA, TransNet revenues are not based on an annual claim process and are instead disbursed as the sales tax revenue is generated. The formula share of TransNet funding is expected to increase by $1.2 million (3.0%) to $43.1 million in total for FY 2027 operations. MTS also receives TransNet as operating assistance for TransNet-funded services, which includes SuperLoop, I-15 BRT, Mid-City Rapid, South Bay BRT, and Mid-Coast Trolley service. TransNet operating assistance is projected to be $39.4 million in FY 2027, an increase of $4.5 million (12.9%) from the FY 2026 amended budget. The increase is due to increasing net expenses for these services as well as a $2.0 million increase due to SANDAG providing less FasTrak funding in the FY 2027 budget, and funding instead with TransNet.

In FY 2026 fiscal year to date, MTS has received $23.6 million of the projected $31.5 million of State Transit Assistance (STA) funding. This funding is primarily programmed in the CIP due to its volatile history, but a portion is also allocated to operations. The amount in the operating budget is typically static at $11.3 million but was reduced to $9.3 million in the FY 2026 budget to keep the capital budget whole while reflecting an anticipated $2.0 million shortfall in overall

STA revenue. The share of STA in the operating budget is increasing back to $11.3 million in FY 2027, an increase of $2.0 million (21.0%) from the FY 2026 amended budget.

Other state revenue is projected to be $52.3 million in FY 2027, an increase of $38.7 million from the FY 2026 operating budget. SB 125, approved by the Governor on July 10, 2023, guides the distribution of $4 billion in General Fund through the Transit Intercity Rail Capital Program (TIRCP) on a population-based formula to regional transportation planning agencies, which can use the funds for either capital or operations. MTS is expected to receive $237.3 million in SB 125 TIRCP funds over multiple fiscal years, including both capital and operations. The FY 2027 operating budget includes $3.5 million for security enhancements, $3.7 million for Route 227 (Iris Rapid) operations, $547,000 for Route 910 (Blue Line Overnight Express) operations, $1.9 million for Trolley service enhancements, and $42.6 million for balancing the structural deficit. SB 125 TIRCP will be used as the balancing mechanism for the operating budget until the funding is depleted.

Other local funding is projected to be $1.1 million in FY 2027, a decrease of $2.0 million (-64.1%) from the FY 2026 amended budget. This is due to a $2.0 million reduction in the amount of FasTrak revenue being provided by SANDAG in FY 2027 (instead funded with TransNet subsidy). Consolidated subsidy revenue totals $358.9 million, an increase of $70.1 million (24.3%) from the FY 2026 amended budget.

Within other revenue, reserve revenue represents an overall contribution of $83,000 to various reserves in FY 2027, a reduction of $68.1 million from the FY 2026 amended budget. The FY 2026 amended budget included the usage of the final balance of $67.6 million from the Operating Deficit Reserve, meaning Operating Deficit Reserve usage in FY 2027 will be zero. The reserve revenue total also includes reserves for the For-Hire Vehicle (FHV) Administration and San Diego & Arizona Eastern (SD&AE), which both are self-funded activities. The FHV Administration is projected to use $116,000 of reserves to balance its operating budget in FY 2027, as expenses are projected to exceed revenues. SD&AE is expected to contribute $199,000 to its reserves, as revenues are projected to exceed expenses.

Fiscal Year 2027 Expenses

Section 2.01 of Attachment A contains the total revenues as detailed above and the total proposed expenses for FY 2027. FY 2027 combined expenses total $482.5 million, an increase from the FY 2026 amended budget of $11.4 million (2.4%).

Transit Service Level Assumptions

The proposed budget reflects planned service levels across all modes. Rail operations service levels are expected to decrease by -2.6% due to running two-car trains during certain non-peak periods. Fixed route bus service levels are expected to decrease -2.4% based on January 2026 service changes and scheduled June 2026 service changes. Paratransit service levels, based on demand, are projected to increase by 9.1%.

Personnel Expenses

Within operating expenses, personnel expenses are projected to increase from the FY 2026 amended budget by $5.0 million (2.4%). Wages are expected to increase by $4.9 million (2.4%) overall, primarily due to Collective Bargaining Agreements (CBAs) which include 4.0% raises for all represented employees. Non-represented employee wages reflect 4.0% merit increases. Within personnel costs, fringe benefit costs are decreasing by $416,000 (-0.5%). The decrease is due to a reduction of $4.8 million in the SDTC defined benefit pension plan due to Board-

approved changes to the Unfunded Actuarial Liability (UAL) amortization policy (no changes to employee benefits). This decrease is being partially offset by increasing healthcare, Workers' Compensation, paid absences, and other costs. Personnel costs also reflect the requested increase of 32.8 FTEs for Construction Safety Flag-persons. The increase in FTEs reflects hiring an additional 20 Construction Safety Flag-persons (8 full-time and 12 part-time) and increasing the FTE assumption from 0.5 to 0.75 for part-time based on the current hours trend.

Purchased Transportation Costs

Purchased transportation costs are projected to increase from the FY 2026 amended budget by $3.3 million (3.0%). This is primarily due to rate increases for both the fixed route contract (East County and South Bay operations) and paratransit/minibus contract (Copley Park operations), both operated by Transdev. Both contracts have fixed and variable rate components which determine total contract costs. The fixed cost rate is not dependent on service levels and is a fixed monthly fee, whereas the variable rate is dependent on the volume of service operated.

Transdev fixed costs in the fixed route contract are increasing by 3.1% over the FY 2026 amended budget. The variable rate for Transdev fixed route contract is increasing by 2.9% in FY 2027. Overall Transdev fixed route contract costs are projected to increase by $950,000 (1.1%) when combining contract rates and a -2.5% decrease in scheduled service currently planned.

Fixed costs on the paratransit/minibus contract are increasing by 4.5% in FY 2027. The minibus per-mile rate is increasing 3.7% for FY 2027, and the paratransit per-hour rate is increasing by 1.8%. Overall, minibus costs are projected to increase by $176,000 (3.0%) due to decreasing scheduled service combined with the rate increases. Paratransit costs are expected to increase by $2.2M (11.7%) due to contract increases and a projected 9.1% increase in demand for the service.

Outside Services

Excluding purchased transportation, outside service expenses are projected to decrease from the FY 2026 amended budget by $1.4 million (-2.2%).

Within outside services, security costs are increasing by $1.0 million (6.8%). The current security contract with Inter-Con expires in December 2026, and the proposed budget reflects forecasted increases.

Repair and maintenance costs are projected to decrease by $2.6 million (-17.1%), primarily due to decreasing the budget for tie replacement by $2.8 million as compared to FY 2026. Engines and transmissions spending is expected to increase by $560,000 (48.5%) and other outside services are projected to decrease by $357,000 (-1.2%).

Materials and Supplies

Materials and supplies costs are projected to increase by $606,000 (2.8%), primarily due to an increase of $800,000 for SD8 Light Rail Vehicle (LRV) drive unit overhauls within the LRV maintenance budget.

Energy Costs

Energy costs are projected to increase by $1.6 million (3.2%).

Electricity costs are projected to increase by $1.3 million (4.0%). The projected rate for electricity is $0.425 per kilowatt-hour for FY 2027, a 9.5% increase versus the rate in the FY 2026 amended budget. Consumption is expected to decrease -1.8% due to running two-car trains during certain non-peak times. Overall electricity costs are only increasing 4.0% due to a one-time $1.8 million catchup payment for two substations in FY 2026 that will not be incurred again in FY 2027.

Compressed Natural Gas (CNG) costs are projected to decrease by $289,000 (-2.1%). The CNG rate is projected at $1.38 per therm in FY 2027, a 4.7% increase versus FY 2026. This includes a 10.2% increase for the commodity price and a 2.2% increase in the San Diego Gas & Electric transportation rate. Consumption is projected to decrease by -6.5% based on the latest projected service levels and current trends.

Other Expenses

Risk management costs are increasing by $2.1 million (15.7%). Insurance premiums (property, excess liability, etc.) are increasing $838,000 (8.6%). Claims are expected to increase $924,000 (31.2%) based on the timing of certain cases. Claim payments in FY 2026 are expected to be lower than budgeted, with some expenses occurring in FY 2027 instead.

General and Administrative costs are increasing by $73,000 (1.0%) over the FY 2026 amended budget, primarily due to expected cost increases for computer equipment.

Vehicle and Facility Lease costs are projected to increase by $109,000 (4.7%), primarily due to non-revenue vehicle leasing expenses.

Debt service costs are zero in FY 2027. MTS has no outstanding debt service obligations.

In total, expenses are projected to increase by $11.4 million or 2.4% versus the FY 2026 amended budget.

Structural Budget Deficit – FY 2027

Based on the proposed revenues and expenses presented above, the operating budget structural deficit of recurring expenses less recurring revenues would be $102.2 million for FY 2027. This deficit is balanced with $50 million of TDA revenue shifted from the FY 2027 CIP, and the use of $52.3 million of non-recurring SB 125 revenue.

FY 2027 Other Information

Section 10 of Attachment A provides detail on the five-year forecast, key operating statistics, positional table information as well as the list of audited reserve balances as of June 30, 2025.

Five-Year Operating Forecast

Section 10.01 provides a look at MTS operations through FY 2031. Operating revenues are projected to increase by 0.3% in FY 2028 and then by an average of 1.6% from FY 2029 through FY 2031. These modest increases reflect 2.0% annual growth assumed for passenger revenue, partially offset by declining interest revenue over the forecast period.

Recurring subsidy revenue in the operating budget, which is primarily composed of sales tax revenues and federal formula funding, are projected to increase by an average of 2.1% from FY 2028 through FY 2031. This relatively low growth rate is based on sales tax growth assumptions

provided by SANDAG, with TransNet formula funds expected to grow by an average of 2.6% and TDA expected to grow by 2.1%. This forecast also assumes federal revenues remain at FY 2027 levels throughout FY 2031 with zero projected growth due to the uncertainty regarding federal funding levels in the future.

Total recurring revenues, including operating revenues and recurring subsidy, are projected to grow by an average of 1.8% from FY 2028 through FY 2031. During that period, expenses are projected to grow by an average of 3.6%, primarily reflecting annual inflation and growth in labor costs, with no service additions or decreases included.

With projected expense growth exceeding projected growth in recurring revenues, the current five-year operating forecast includes projected structural deficits in each subsequent fiscal year, beginning with a structural deficit of $102.2 million in FY 2027 and growing to $147.2 million in FY 2031. Non-recurring revenues, in the form of one-time shifts from the capital to budget ($50.0 million per year) and SB 125 funding are projected to balance the operating budget through FY 2029. In the current forecast, MTS will hit the fiscal cliff early in FY 2030, with a projected revenue shortfall of $80.5 million.

Ultimately, expenses and recurring revenues will need to match to eliminate the structural deficit and achieve long-term sustainability. The current strategy is to maintain service levels as long as possible and to balance the operating budget through FY 2030 using non-recurring funds until depleted. This would allow enough time for MTS to pursue additional revenue measures (ballot measure, TDA reform) before making dramatic service cuts that would be necessary to eliminate the structural deficit if no additional revenue streams are identified.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachments: A. FY 2027 Operating Budget
B. Resolution No. 26-08

Fiscal Year 2027

Proposed Budget

Draft for Public Hearing

June 18, 2026

Metropolitan Transit System

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
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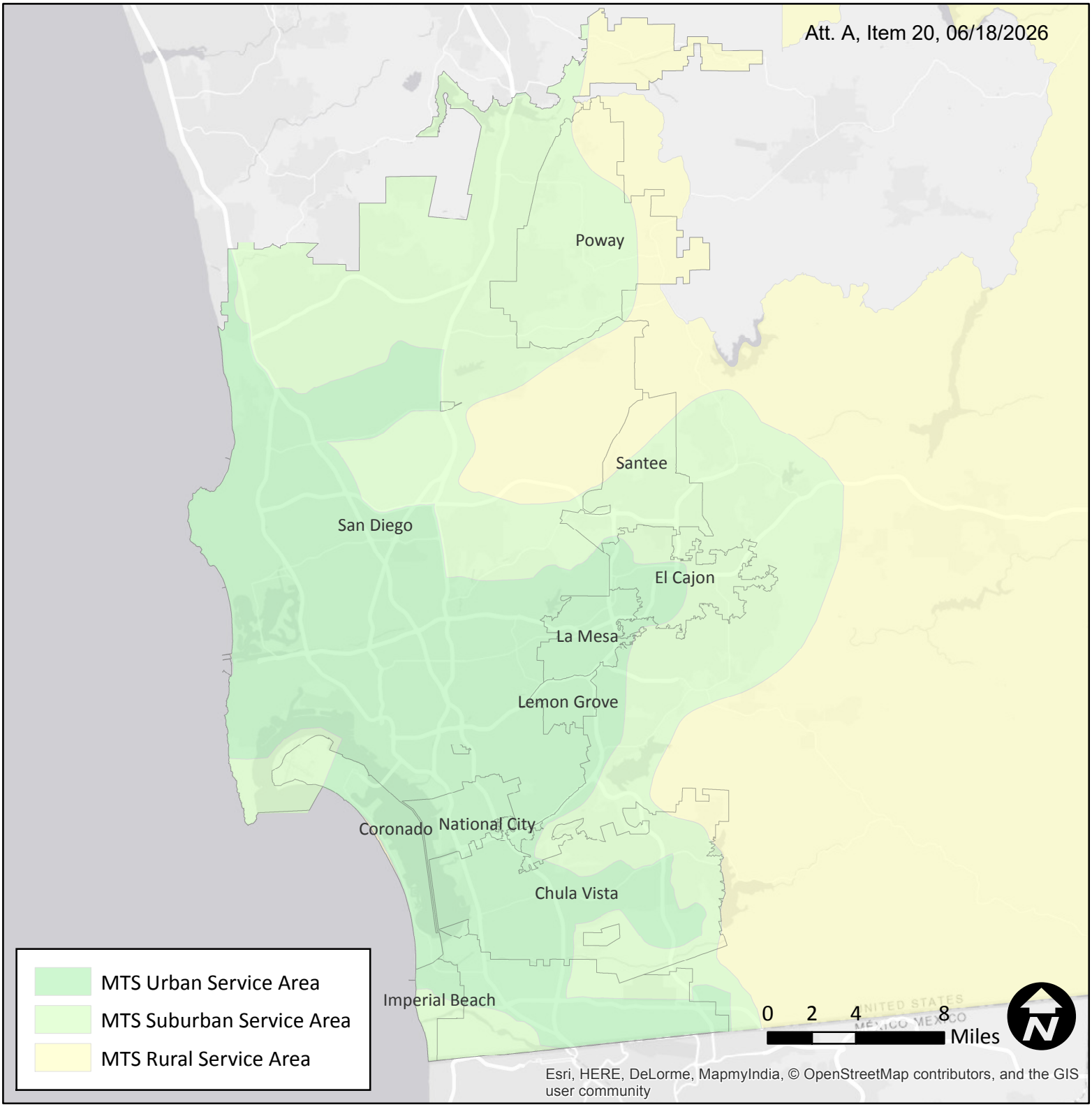
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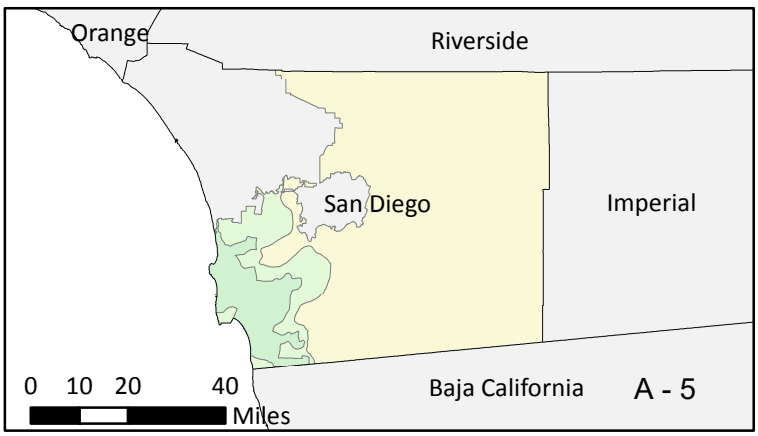
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San Diego Metropolitan Transit System

Area of Jurisdiction

June 2027



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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
System Summary
Fiscal Year 2027
Section 1.03

The San Diego Metropolitan Transit System was created to provide the policy setting and overall management coordination of the public transportation system in the San Diego metropolitan service area. This service area encompasses approximately 3 million people residing in a 570 square mile area of San Diego County, including the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, Santee, San Diego and the unincorporated area of the County of San Diego. A number of fixed-route operating entities provide the service and have banded together to form a federation of transit service providers called the Metropolitan Transit System (MTS). The purpose of MTS is to provide coordinated routes, fares and transfers among the different operating entities.

Rail Operations

MTS Rail Operations (SDTI) operate and maintain a fleet of 168 light rail vehicles (LRVs) to provide transit service over four separate operating line segments. The Blue Line operates from the San Ysidro Transit Center through downtown San Diego and terminates at the University Towne Center (UTC) Transit Center. As of September 1, 2024, the Orange Line serves East County communities from the Courthouse Station in downtown San Diego through El Cajon Transit Center. The Green Line also connects passengers from downtown San Diego to El Cajon, but it starts at 12th & Imperial Transit Center and operates through the Bayside corridor (serving the Convention Center, major hotels, and Petco Park), before serving Old Town, Mission Valley, and SDSU on its alignment. At El Cajon, passengers from the Orange/Green Lines transfer to the Copper Line, which serves the stations between El Cajon and Santee.

Regular trolley service is provided virtually around the clock with a 22-hour service window, and increased service is provided during special events throughout the year. In fiscal year (FY) 2027, ridership for the MTS rail system is projected at approximately 44.1 million passengers.

Bus Operations

MTS Bus Operations are a consolidation of services operated by San Diego Transit Corporation (SDTC) and MTS Contracted Services. These entities operate and maintain a fleet of 726 buses in total, of which 74.8% are powered by renewable compressed natural gas, 5.5% are electric, 3.7% are gas-powered, and 16.0% are light/medium duty propane buses. In FY27, MTS bus services will operate over 100 fixed routes, including traditional urban shuttle-type routes, express routes and bus rapid transit routes, plus paratransit services. These bus services will log over 2.0 million revenue hours while traveling over 24 million revenue miles across San Diego County in FY27. FY27 ridership for all MTS bus services is projected at 39.0 million passengers.

Other Operations

The City of Coronado sponsors a peak-period, fare-free commuter ferry service operating between downtown San Diego, Naval Air Station North Island, and Coronado. The service currently operates on weekdays only in the mornings for six trips departing from Broadway between the hours of 4:50 a.m. and 8:10 a.m. and six trips departing from Coronado Ferry Landing between the hours of 5:10 a.m. and 8:35 a.m. In the afternoons there are five trips departing from Broadway between 2:00 p.m. and 6:00 p.m. and five trips departing from Coronado Ferry Landing between 2:30 p.m. and 6:30 p.m.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Rail Operations Description of Activities
Fiscal Year 2027
Section 1.03

General System Summary

San Diego Trolley, Inc. opened for revenue service on July 26, 1981, with the initial operating line extending from Centre City San Diego, to San Ysidro Station at the Mexican border. The system, now referred to as the MTS Rail Division, has enjoyed a very successful 45-year operating history, maturing through ten service expansions to one of the largest LRT systems in North America at over 65 miles in length.

The LRT operation consists of four separate operating lines. The Blue Line operates from the San Ysidro Transit Center through downtown San Diego and terminates at the University Towne Center (UTC) Transit Center. As of September 1, 2024, the Orange Line serves East County communities from the Courthouse Station in downtown San Diego through El Cajon Transit Center. The Green Line also connects passengers from downtown San Diego to El Cajon, but it starts at 12th & Imperial Transit Center and operates through the Bayside corridor (serving the Convention Center, major hotels, and Petco Park), before serving Old Town, Mission Valley, and SDSU on its alignment. At El Cajon, passengers from the Orange/Green Lines transfer to the Copper Line, which serves the stations between El Cajon and Santee.

The entire system provides low-floor service where on-time performance and service efficiencies continue to enhance the ridership experience.

The system operates and maintains a fleet of 168 Siemens light rail vehicles. Of the original 52 Siemens SD100 high-floor light rail vehicles, 13 have been decommissioned and recycled. 30 of 39 SD100 light rail vehicles have been decommissioned and delivered to the Province of Mendoza, Argentina and the remaining 9 will be delivered by December 2026. One Siemens U-2 light rail vehicle has been retained for delivery to the Karl Strauss Brewery (“original Red Trolley Ale”) for use at their newly planned facility in the City of Santee. The 1001 has been fully restored and recommissioned by MTS for heritage purposes. Two PCC cars have been fully restored and provide service as part of the MTS Vintage fleet on the Silver Line (Centre City Loop). The standard train consist is primarily S70-S70-S70 (low-floor). The general operating environment includes a combination of open stations at-grade with standard railroad crossing protection, downtown mixed street traffic operation, elevated guideways with aerial stations, open-cut sub-grade tracks and one 4,100-ft long tunnel and underground station at SDSU.

The MTS Rail System is projected to carry 44.1 million passengers in FY27. Light rail service is provided to 64 stations and transit centers across seven local jurisdictions, each with separate emergency response (police, fire and paramedic) services. Currently, MTS Rail Operations runs 585 weekday scheduled trips and many more during special events. While average weekday ridership is approximately 120,000, this number increases substantially when event service is provided. Major special events include those at PETCO Park (Padres), ComicCon, Oktoberfest, etc. Regular LRT service is provided virtually around the clock with a 22-hour service window.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Directly Operated Bus Services Description of Activities
Fiscal Year 2027
Section 1.03

General System Summary

Founded in 1886, San Diego Transit Corporation (SDTC) has been providing the citizens of San Diego with safe, efficient, and reliable public transportation for over 130 years. Its fleet of 256 buses is projected to carry 18.1 million passengers in FY27.

SDTC, now referred to as MTS Bus, directly operates 25 routes, 16 Urban/Local routes, 3 Express routes, and 6 Rapid routes. Three of the urban routes operate with a limited-stop component, serving only major stops for a faster trip. Service is offered throughout the City of San Diego and into surrounding communities in an area that stretches from National City in the South Bay as far north as the City of Escondido and from the Pacific Ocean to the College area. These routes meet a variety of customer needs providing transportation to work, school, shopping, medical appointments, and recreational activities.

Effective June 2014, MTS Bus initiated services for the Bus Rapid Transit (BRT) project. The BRT platform is based on a priority operating environment through the use of managed bus lanes and signal priority. MTS Bus operates the branded “Rapid” routes (215, 235, & 237) featuring high frequency, longer service duration, articulated buses and enhanced passenger facilities. Rapid services operate along several corridors, including: the I-15 corridor between Downtown San Diego and Escondido, the El Cajon Blvd corridor between San Diego State University (SDSU) and Downtown San Diego and along Mira Mesa Blvd corridor between I-15 (Miramar College) and University of California San Diego (UCSD). The Super-Loop, a locally branded form of BRT and part of the Rapid family, provides service to the community of University City, serving UCSD, UTC shopping center and La Jolla Colony on Routes 201, 202, and 204. These BRT services provide an entire new network of premium level services for the community.

The entire MTS Bus fleet is fully ramp accessible to persons with mobility impairments. Every bus has two securement areas to accommodate and secure wheelchairs. All buses also have a “kneeling” feature, which lowers the front of the bus for easier access to/from the curb. The entire fleet is comprised of low-floor buses, making entry and exit easier and faster. The fleet is also equipped with an Automatic Voice Annunciation (AVA) system, automating on-board passenger announcements and an onboard video camera system. All MTS buses are equipped with bicycle racks that allow cyclists to combine their modes of travel.

MTS Bus is committed to providing safe transportation with an emphasis on defensive driving. This commitment has resulted in a significant reduction in the preventable accident rate (AFR) over the last five years. APTA recognized MTS Bus with the top safety award among all large transit agencies in the US in 2015 and 2017. MTS Bus maintains an aggressive Preventive Maintenance Program to ensure the safety and reliability of its equipment and ensures fewer customers are inconvenienced due to bus malfunctions. MTS Bus is committed to providing its customers with a quality riding experience, employing programs to monitor driver performance, following through on customer input and provide continuous training to refresh drivers’ operating and customer service skills.

MTS Bus staff operates three customer call centers, assisting over 385,000 callers each year. The MTS Information & Trip Planning office provides complete route, schedule, and system information for all the fixed route bus and trolley services. The PRONTO Support Center provides customer support for the entire San Diego region for PRONTO, including pass sales, troubleshooting, and account information. The Customer Service call center processes all customer feedback, including website submittals, phone calls, and emails, and assigns cases for further investigation by the appropriate divisions.

MTS Bus staff also operates the Transit Store, a downtown retail facility that assists with fare media sales, lost and found retrieval, ID cards for seniors/disabled/youth, as well as passenger education on our system.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Contract Bus Services' Description of Activities
Fiscal Year 2027
Section 1.03

General System Summary

MTS Contracted Bus Services directly contracts with private transportation providers to operate fixed-route, shuttle, minibus, and paratransit services. MTS manages this service through contract administration, operational, maintenance and fiscal performance management, incorporating a variety of operation service contracts. MTS began contracting bus operations in the region in the early 1980s. Various fixed-route and shuttle type services have been added over the past four decades.

Operationally, FY27 ridership for MTS contracted fixed routes is estimated at 20.5 million passengers. In FY27, contract bus services will operate a total of 86 traditional fixed and shuttle-type routes, logging approximately 1.1 million revenue hours while traveling approximately 11.3 million fixed-route revenue miles across San Diego County. Currently, MTS contracted bus operations have two long-term service contracts with Transdev North America, one for fixed route bus services, and another for paratransit and minibus services (formerly operated by First Transit Inc. which was acquired by Transdev in March of 2023).

Transdev North America – Fixed Route Services

Transdev North America, Inc. is headquartered in Lombard, Illinois near Chicago. Transdev North America is the largest private sector operator of multiple modes of transit in North America, providing bus, rail, paratransit, shuttle, sedan and taxi services. They manage over 200 transportation contracts for cities, transit authorities and airports, providing safe and sustainable mobility solutions. Their mission is to improve public transportation, to enhance quality of life and combat global warming. In California, Transdev operates 20+ contracts including San Francisco, Oakland, Los Angeles, San Diego, Napa, Sonoma, and more.

Transdev has developed a suite of specialized business procedures, processes, programs and proprietary technology in each area of transit operations. It is dedicated to providing safe, reliable, efficient and sustainable mobility that passengers, transit authorities and cities can trust.

Transdev is a global leader in passenger transportation and operates in 20 countries on five continents with 83,000 employees and provides more than 3.5 billion passenger trips annually in bus, paratransit, taxi, rail, and ferry services. Transdev is owned by Caisee des Depots, a financial institution that is a long-term investor in projects that serve the public interest, including affordable housing, energy efficiency, renewable energy, public transportation, and infrastructure.

Transdev has been a private transportation provider for MTS since July 1992. In early 2021, Transdev was awarded a renewal of its fixed-route contract by the MTS Board of Directors. Transdev operates MTS's South Bay Division located in Chula Vista, and MTS's East County Division located in El Cajon.

The South Bay, East County, Commuter Express, Rural and BRT bus service contract, effective June 27, 2021, has a value estimated to be $943 million over the full 10-year contract term (6 base years with two 2-year options available to MTS).

South Bay Division

MTS's South Bay Division operates 38 fixed routes in the south and central areas of San Diego County, including the South Bay Rapid, which was launched in January of 2019. These routes utilize 204 MTS-owned compressed natural gas (CNG) fueled transit buses and 25 MTS-owned battery electric buses (BEB). All of these buses are operated, serviced, fueled and charged at the MTS-owned South Bay Division located at 3650 A Main Street in Chula Vista. In 2024, MTS erected an expansive overhead charging system that supports large scale battery electric bus operations and MTS's zero emissions bus program. Additionally, this division has two (2) pedestal battery electric bus chargers.

From MTS' South Bay Division, Transdev operates the new South Bay Rapid (Route 225) and Iris Rapid (Route 227), all of the 700-series routes and the majority of the 900-series routes provides service to many communities within the City of San Diego, Ocean Beach, Point Loma, Kearny Mesa, Mission Valley, Serra Mesa, Emerald Hills, College Area, Valencia Park, Oak Park, Southcrest, City Heights, Hillcrest, Old Town, Mission Hills, South San Diego, Barrio Logan, Otay Mesa, Mira Mesa and San Ysidro. Transdev operates service in Coronado, Imperial Beach, National City, Chula Vista, Lemon Grove and some additional areas in the County of San Diego. Transdev also operates service between downtown San Diego and the airport.

South Bay Weekend/Holiday Service

On Sundays and holidays, South Bay operates ten additional routes in the East County area. These routes utilize the same 229 MTS-owned transit buses as above and are serviced and fueled at the MTS South Bay Division.

East County Division

MTS's East County Division operates 19 fixed routes, 4 rural routes, and 2 express routes in the eastern, northern and rural areas of San Diego County. These routes utilize 57 MTS-owned CNG transit buses, 24 MTS-owned CNG over-the-road type coaches and 3 MTS-owned gasoline minibuses. All of these buses are operated, serviced and fueled at the MTS-owned East County Division located at 544 Vernon Way in El Cajon. The division also has two (2) battery electric bus chargers installed.

Transdev mainly operates the 800 series fixed routes, but also operates a handful of 900 series fixed routes in the eastern areas of the county. The East County service operates within the cities of El Cajon, Santee, La Mesa, Lemon Grove and unincorporated areas of Lakeside, Alpine, Rancho San Diego, Casa de Oro, Spring Valley, La Mesa and the City of San Diego. Rural service operates in communities from Ramona to Borrego Springs, Jacumba, Pine Valley, Descanso, Viejas, Alpine, Tecate, Rancho San Diego and Campo.

Transdev's East County Division also operates two 200-series rapid express routes. These rapid express routes operate during peak periods only along Interstate 15 (I-15) between the communities of Escondido, Poway, Rancho Bernardo, Rancho Penasquitos/Sabre Springs, Carmel Mountain Ranch, and downtown San Diego. Service is provided on commuter type over-the-road style buses and use dedicated high-occupancy vehicle (HOV) lanes and limited stops to provide quick and easy travel along the corridor.

Transdev – Paratransit and Minibus Services

Prior to March of 2023, paratransit and minibus services were operated by First Transit, Inc. In March of 2023, Transdev completed the acquisition of First Transit, Inc. and it is now operating under the Transdev brand. In addition to providing fixed route bus services for MTS, Transdev now operates ADA paratransit service and minibus fixed route services.

Copley Park Division

ADA Paratransit Service

Transdev operates 92 propane and 20 gasoline powered paratransit buses, to provide ADA paratransit service throughout the entire MTS service area. All of these buses are owned by MTS and operated, serviced and fueled at the MTS-owned/leased Copley Park Division located at 7490/7550 Copley Park Place in Kearny Mesa. In addition, Transdev operates the reservation call center, scheduling, dispatching and maintenance for MTS's ADA paratransit services which carried over 314,000 passengers in FY25.

Transdev (formerly First Transit Inc.) has been the contracted provider of Paratransit services to MTS since 2000 and was awarded a new contract for six base years and 4 option years in June 2020.

Fixed Route Service

Minibus service operates from the MTS Copley Park Division in Kearny Mesa. MTS will continue to realize significant cost savings over the duration of this contract by taking advantage of economies of scales presented by the opportunity to operate the ADA service contract jointly with the minibus operation at the same location, thus, taking full advantage of the many operating synergies.

Transdev began minibus operations on June 12, 2011, serving Mira Mesa, Linda Vista, Kearny Mesa, Poway, Tierrasanta, El Cajon, Santee, Spring Valley, and Mid-City. First Transit operates 24 propane and 7 MTS-owned gasoline powered minibuses on 14 fixed routes.

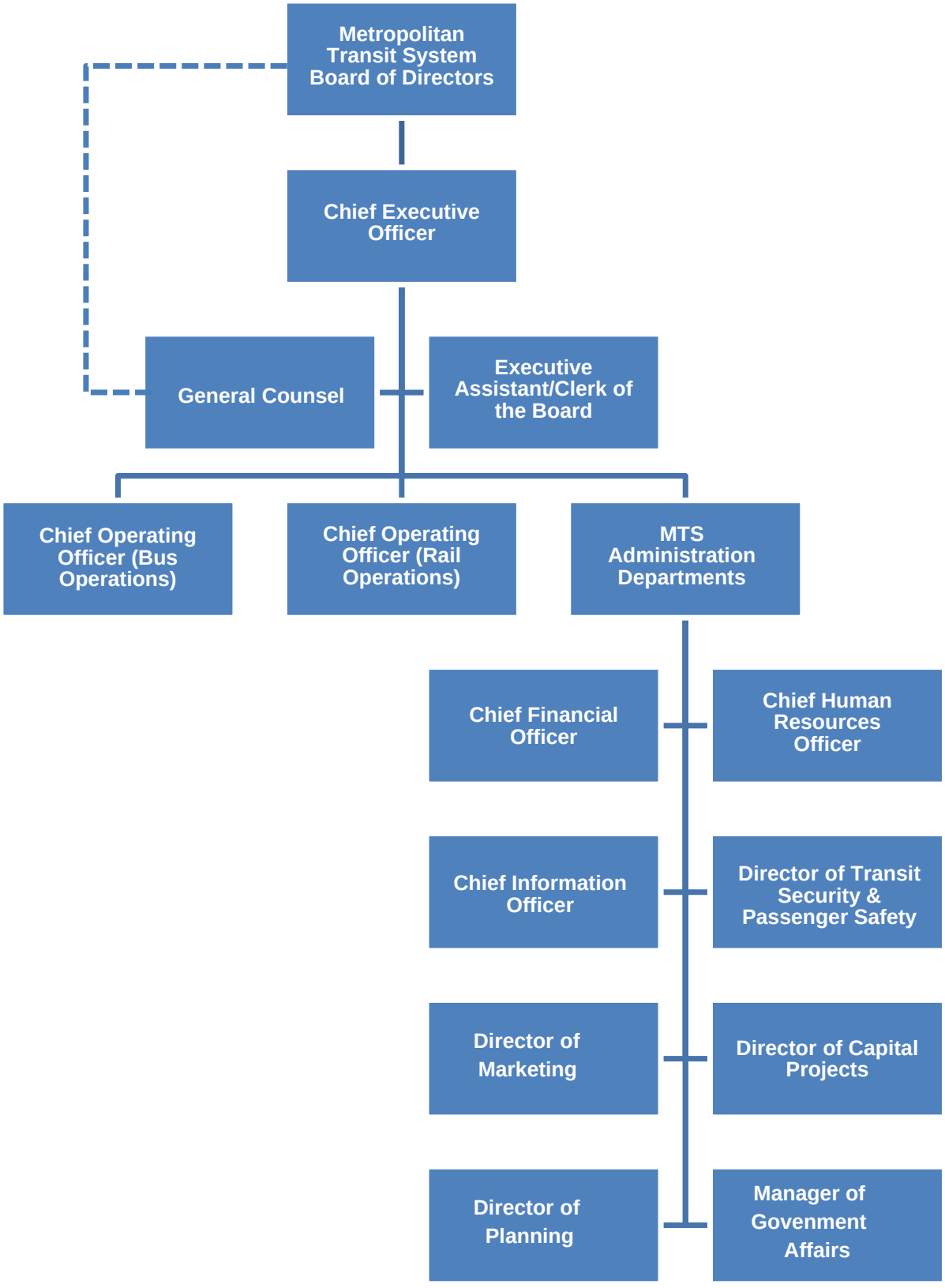
SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Coronado Ferry Description of Activities
Fiscal Year 2027
Section 1.03

General System Summary

The City of Coronado with the Port of San Diego sponsors a peak -period, fare-free commuter ferry service operating between downtown San Diego and Coronado. This ferry service transports approximately 89,000 passengers per year. The City of Coronado contracts with Flagship Cruises and Events to provide this peak period, fare-free commuter ferry service.

The service currently operates on weekdays only in the mornings for six trips departing from Broadway between the hours of 4:50 a.m. and 8:10 a.m. and six trips departing from Coronado Ferry Landing between the hours of 5:10 a.m. and 8:30a.m. In the afternoons there are six trips departing from Broadway between 2:00 p.m. and 7:00 p.m. and six trips departing from Coronado Ferry Landing between 2:30 p.m. and 7:30 p.m.

San Diego Metropolitan Transit System
Executive Level Organization Chart
Fiscal Year 2027
Section 1.04



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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OPERATING BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 2.01

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	77,896,658	80,820,126	83,014,390	2,194,264	2.7%
OTHER OPERATING REVENUE	36,176,729	33,478,163	33,489,800	11,637	0.0%
TOTAL OPERATING REVENUES	**114,073,387**	**114,298,289**	**116,504,190**	**2,205,901**	**1.9%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	309,605,221	288,785,167	366,077,962	77,292,795	26.8%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	19,359,078	67,981,456	(82,598)	(68,064,054)	-100.1%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	19,359,078	67,981,456	(82,598)	(68,064,054)	-100.1%
TOTAL NON OPERATING REVENUE	**328,964,299**	**356,766,623**	**365,995,365**	**9,228,742**	**2.6%**
TOTAL COMBINED REVENUES	**443,037,686**	**471,064,912**	**482,499,555**	**11,434,643**	**2.4%**
OPERATING EXPENSES					
LABOR EXPENSES	115,656,871	121,425,779	126,789,555	5,363,776	4.4%
FRINGE EXPENSES	78,958,853	81,367,453	80,951,626	(415,827)	-0.5%
TOTAL PERSONNEL EXPENSES	**194,615,723**	**202,793,232**	**207,741,181**	**4,947,949**	**2.4%**
SECURITY EXPENSES	14,142,830	15,274,622	16,311,495	1,036,873	6.8%
REPAIR/MAINTENANCE SERVICES	11,152,828	15,259,257	12,645,191	(2,614,066)	-17.1%
ENGINE AND TRANSMISSION REBUILD	1,328,910	1,154,468	1,714,000	559,532	48.5%
OTHER OUTSIDE SERVICES	25,432,291	29,402,718	29,045,915	(356,803)	-1.2%
PURCHASED TRANSPORTATION	109,099,796	111,607,521	114,927,329	3,319,808	3.0%
TOTAL OUTSIDE SERVICES	**161,156,655**	**172,698,586**	**174,643,930**	**1,945,344**	**1.1%**
LUBRICANTS	490,290	484,000	527,000	43,000	8.9%
TIRES	1,351,794	1,562,300	1,627,300	65,000	4.2%
OTHER MATERIALS AND SUPPLIES	16,476,172	19,287,264	19,785,569	498,305	2.6%
TOTAL MATERIALS AND SUPPLIES	**18,318,256**	**21,333,564**	**21,939,869**	**606,305**	**2.8%**
GAS/DIESEL/PROPANE	2,862,634	3,139,575	3,793,261	653,686	20.8%
CNG	12,804,983	13,673,143	13,384,413	(288,730)	-2.1%
TRACTION POWER	23,784,125	27,731,480	28,615,015	883,535	3.2%
UTILITIES	6,238,841	6,445,654	6,820,244	374,590	5.8%
TOTAL ENERGY	**45,690,583**	**50,989,852**	**52,612,933**	**1,623,081**	**3.2%**
RISK MANAGEMENT	**10,840,927**	**13,599,339**	**15,729,391**	**2,130,052**	**15.7%**
GENERAL AND ADMINISTRATIVE	**6,898,324**	**7,313,754**	**7,386,548**	**72,794**	**1.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**2,196,944**	**2,336,586**	**2,445,703**	**109,117**	**4.7%**
TOTAL OPERATING EXPENSES	**439,717,412**	**471,064,913**	**482,499,555**	**11,434,642**	**2.4%**
NET OPERATING SUBSIDY	**(325,644,025)**	**(356,766,624)**	**(365,995,365)**	**9,228,741**	**2.6%**
OVERHEAD ALLOCATION	**0**	**(0)**	**0**	**0**	**0.0%**
ADJUSTED NET OPERATING SUBSIDY	**(325,644,025)**	**(356,766,624)**	**(365,995,365)**	**9,228,741**	**2.6%**
TOTAL REVENUES LESS TOTAL EXPENSES	**3,320,274**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OPERATIONS BUDGET
FISCAL YEAR 2027
SECTION 2.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	77,896,658	80,820,126	83,014,390	2,194,264	2.7%
OTHER OPERATING REVENUE	1,197,969	702,941	1,074,720	371,779	52.9%
TOTAL OPERATING REVENUES	**79,094,627**	**81,523,067**	**84,089,110**	**2,566,043**	**3.1%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	302,214,724	285,239,334	361,453,817	76,214,483	26.7%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	19,540,356	67,607,783	-	(67,607,783)	-100.0%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	19,540,356	67,607,783	-	(67,607,783)	-100.0%
TOTAL NON OPERATING REVENUE	**321,755,081**	**352,847,117**	**361,453,817**	**8,606,700**	**2.4%**
TOTAL COMBINED REVENUES	**400,849,708**	**434,370,184**	**445,542,927**	**11,172,743**	**2.6%**
OPERATING EXPENSES					
LABOR EXPENSES	92,009,119	96,181,948	100,066,019	3,884,071	4.0%
FRINGE EXPENSES	68,200,223	70,356,136	68,816,853	(1,539,283)	-2.2%
TOTAL PERSONNEL EXPENSES	**160,209,341**	**166,538,084**	**168,882,872**	**2,344,788**	**1.4%**
SECURITY EXPENSES	1,247,599	1,315,122	1,419,319	104,197	7.9%
REPAIR/MAINTENANCE SERVICES	10,797,644	14,932,357	12,402,291	(2,530,066)	-16.9%
ENGINE AND TRANSMISSION REBUILD	1,328,910	1,154,468	1,714,000	559,532	48.5%
OTHER OUTSIDE SERVICES	9,703,339	11,001,377	8,495,938	(2,505,439)	-22.8%
PURCHASED TRANSPORTATION	109,099,796	111,607,521	114,927,329	3,319,808	3.0%
TOTAL OUTSIDE SERVICES	**132,177,287**	**140,010,845**	**138,958,877**	**(1,051,968)**	**-0.8%**
LUBRICANTS	490,290	484,000	527,000	43,000	8.9%
TIRES	1,351,794	1,562,300	1,627,300	65,000	4.2%
OTHER MATERIALS AND SUPPLIES	16,290,390	19,207,016	19,265,710	58,694	0.3%
TOTAL MATERIALS AND SUPPLIES	**18,132,474**	**21,253,316**	**21,420,010**	**166,694**	**0.8%**
GAS/DIESEL/PROPANE	2,626,509	2,901,975	3,520,661	618,686	21.3%
CNG	12,804,983	13,673,143	13,384,413	(288,730)	-2.1%
TRACTION POWER	23,784,125	27,731,480	28,615,015	883,535	3.2%
UTILITIES	5,184,603	5,447,633	5,806,999	359,366	6.6%
TOTAL ENERGY	**44,400,221**	**49,754,231**	**51,327,088**	**1,572,857**	**3.2%**
RISK MANAGEMENT	**9,900,789**	**12,423,566**	**14,474,531**	**2,050,965**	**16.5%**
GENERAL AND ADMINISTRATIVE	**1,103,989**	**1,322,022**	**1,140,611**	**(181,411)**	**-13.7%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**1,713,877**	**1,676,466**	**1,753,120**	**76,654**	**4.6%**
TOTAL OPERATING EXPENSES	**367,637,978**	**392,978,530**	**397,957,109**	**4,978,579**	**1.3%**
NET OPERATING SUBSIDY	**(288,543,351)**	**(311,455,463)**	**(313,867,999)**	**2,412,536**	**0.8%**
OVERHEAD ALLOCATION	**(33,211,729)**	**(41,391,655)**	**(47,585,818)**	**(6,194,163)**	**15.0%**
ADJUSTED NET OPERATING SUBSIDY	**(321,755,080)**	**(352,847,118)**	**(361,453,817)**	**8,606,699**	**2.4%**
TOTAL REVENUES LESS TOTAL EXPENSES	**0**	**(1)**	**(0)**	**(1)**	**-71.7%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
ADMINISTRATIVE BUDGET
FISCAL YEAR 2027
SECTION 2.03

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	33,872,458	31,620,877	31,187,312	(433,565)	-1.4%
TOTAL OPERATING REVENUES	**33,872,458**	**31,620,877**	**31,187,312**	**(433,565)**	**-1.4%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	7,390,497	3,545,833	4,624,145	1,078,312	30.4%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**7,390,497**	**3,545,833**	**4,624,145**	**1,078,312**	**30.4%**
TOTAL COMBINED REVENUES	**41,262,955**	**35,166,710**	**35,811,457**	**644,747**	**1.8%**
OPERATING EXPENSES					
LABOR EXPENSES	23,229,836	24,783,831	26,230,071	1,446,240	5.8%
FRINGE EXPENSES	10,529,754	10,766,767	11,855,919	1,089,152	10.1%
TOTAL PERSONNEL EXPENSES	**33,759,589**	**35,550,598**	**38,085,990**	**2,535,392**	**7.1%**
SECURITY EXPENSES	12,895,232	13,959,500	14,892,176	932,676	6.7%
REPAIR/MAINTENANCE SERVICES	351,686	319,900	235,900	(84,000)	-26.3%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	15,623,405	17,861,341	20,447,977	2,586,636	14.5%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**28,870,322**	**32,140,741**	**35,576,053**	**3,435,312**	**10.7%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	183,400	79,748	519,359	439,611	551.3%
TOTAL MATERIALS AND SUPPLIES	**183,400**	**79,748**	**519,359**	**439,611**	**551.3%**
GAS/DIESEL/PROPANE	231,725	230,600	265,600	35,000	15.2%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	1,054,238	998,021	1,013,245	15,224	1.5%
TOTAL ENERGY	**1,285,963**	**1,228,621**	**1,278,845**	**50,224**	**4.1%**
RISK MANAGEMENT	**864,224**	**1,033,106**	**1,138,086**	**104,980**	**10.2%**
GENERAL AND ADMINISTRATIVE	**5,730,424**	**5,928,068**	**6,188,673**	**260,605**	**4.4%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**458,458**	**632,120**	**663,726**	**31,606**	**5.0%**
TOTAL OPERATING EXPENSES	**71,152,381**	**76,593,002**	**83,450,732**	**6,857,730**	**9.0%**
NET OPERATING SUBSIDY	**(37,279,923)**	**(44,972,125)**	**(52,263,420)**	**7,291,295**	**16.2%**
OVERHEAD ALLOCATION	**33,210,996**	**41,426,292**	**47,639,275**	**6,212,982**	**15.0%**
ADJUSTED NET OPERATING SUBSIDY	**(4,068,927)**	**(3,545,833)**	**(4,624,145)**	**1,078,313**	**30.4%**
TOTAL REVENUES LESS TOTAL EXPENSES	**3,321,569**	**0**	**-**	**0**	**-100.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OTHER ACTIVITIES BUDGET
FISCAL YEAR 2027
SECTION 2.04

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	1,106,302	1,154,345	1,227,768	73,423	6.4%
TOTAL OPERATING REVENUES	**1,106,302**	**1,154,345**	**1,227,768**	**73,423**	**6.4%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	(181,279)	373,673	(82,598)	(456,271)	-122.1%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	(181,279)	373,673	(82,598)	(456,271)	-122.1%
TOTAL NON OPERATING REVENUE	**(181,279)**	**373,673**	**(82,598)**	**(456,271)**	**-122.1%**
TOTAL COMBINED REVENUES	**925,024**	**1,528,018**	**1,145,170**	**(382,848)**	**-25.1%**
OPERATING EXPENSES					
LABOR EXPENSES	417,916	460,000	493,465	33,465	7.3%
FRINGE EXPENSES	228,876	244,550	278,854	34,304	14.0%
TOTAL PERSONNEL EXPENSES	**646,792**	**704,550**	**772,319**	**67,769**	**9.6%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	3,498	7,000	7,000	-	0.0%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	105,547	540,000	102,000	(438,000)	-81.1%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**109,045**	**547,000**	**109,000**	**(438,000)**	**-80.1%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	2,382	500	500	-	0.0%
TOTAL MATERIALS AND SUPPLIES	**2,382**	**500**	**500**	**-**	**0.0%**
GAS/DIESEL/PROPANE	4,399	7,000	7,000	-	0.0%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**4,399**	**7,000**	**7,000**	**-**	**0.0%**
RISK MANAGEMENT	**75,915**	**142,667**	**116,774**	**(25,893)**	**-18.1%**
GENERAL AND ADMINISTRATIVE	**63,911**	**63,664**	**57,264**	**(6,400)**	**-10.1%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**24,608**	**28,000**	**28,857**	**857**	**3.1%**
TOTAL OPERATING EXPENSES	**927,053**	**1,493,381**	**1,091,714**	**(401,667)**	**-26.9%**
NET OPERATING SUBSIDY	**179,249**	**(339,036)**	**136,054**	**(475,090)**	**-140.1%**
OVERHEAD ALLOCATION	**733**	**(34,637)**	**(53,456)**		**54.3%**
ADJUSTED NET OPERATING SUBSIDY	**179,983**	**(373,673)**	**82,598**	**(456,271)**	**-122.1%**
TOTAL REVENUES LESS TOTAL EXPENSES	**(1,296)**	**0**	**0**	**(0)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CAPITAL IMPROVEMENT PROGRAM
FY 2027 FUNDING SOURCES ($000s)
SECTION 2.05

Funding Description	FY25	FY26	FY27
Federal Funding Estimate	$ 113,590	$ 115,707	$ 116,783
Transportation Development Act	45,781	52,726	54,142
California State Transit Assistance (STA)	32,972	28,016	24,577
California Cap and Trade (TIRCP, LCTOP)	43,605	50,658	14,842
California Senate Bill 125 (TIRCP, ZETCP)	43,265	-	-
TransNet	15,000	-	-
Other Funding	25,423	17,930	27,739
Total Available Funding	**$ 319,636**	**$ 265,037**	**$ 238,083**
Preventive Maintenance	$ (63,000)	$ (70,000)	$ (72,000)
SANDAG Planning Study	(291)	(297)	(301)
ADA Operations	(6,269)	(6,400)	(6,400)
Total Preventative Maintenance/SANDAG Planning	**$ (69,560)**	**$ (76,696)**	**$ (78,700)**
Funding Shift to Operations (TDA)	-	(25,000)	(50,000)
Total Other Adjustments	**$ -**	**$ (25,000)**	**$ (50,000)**
Available Funding for Capital Program	**$ 250,076**	**$ 163,341**	**$ 109,383**

Capital Project Categories	FY25	FY26	FY27
Bus Revenue Vehicles	$ 60,577	$ 53,906	$ 40,195
Rail Revenue Vehicles	21,000	-	-
Facility & Construction Projects	21,938	6,026	14,519
Rail Infrastructure	69,472	85,410	27,550
Other Equipment & Installations	22,252	7,212	4,684
Other Initiatives	54,839	10,787	22,435
Grand Total	**$ 250,076**	**$ 163,341**	**$ 109,383**

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Summary of Significant Revenue Activities
Proposed Budget Fiscal Year 2027
Section 3.01

Fare Revenue

Fare revenue is detailed in Section 3.03.

Passenger fares make up approximately 17.2 percent of the system's $482.5 million operating budget. Passenger fare revenue is projected at $83.0 million for FY27, an increase of $2.2 million (2.7 percent) compared to amended FY26 levels. Total passenger levels for all operators are projected to total 83.1 million, an increase of 2.3 million (2.8 percent) from amended FY26 levels. Average fare is assumed at $1.00 per passenger, representing zero change from the FY26 amended budget.

Other Operating Revenues

Other revenue is detailed in Section 3.04.

MTS receives a variety of operating revenues that are not received directly from passenger fares. The sources of these revenues are advertising, interest income, real-estate revenues, energy credits, income related to the For-Hire Vehicle (FHV) Administration, income from the San Diego and Arizona Eastern (SD&AE) Railway Company and other miscellaneous income.

Other operating revenues are projected to increase by $12,000 in total. Within other operating revenues, energy credit revenue is increasing $2.4 million (22.6 percent) primarily due to reflecting a full year of higher credit generation for Trolley traction power (due to the Low Carbon Fuel Standard (LCFS) program change) as well as the projected sale of 60,000 banked credits.

Advertising revenue is projected to increase $922,000 (14.7 percent), primarily due to higher revenue generation from the Gaslamp digital billboard as well as a variety of new advertising initiatives being developed by the Marketing department.

Real-estate revenues are projected to increase $151,000 (3.2 percent), primarily due to significant increases in right-of-entry permit fees to fully recover permit processing costs.

The increases above are mostly offset by a projected decrease in interest revenue of $4.0 million (-52.1 percent). Unrestricted cash balances are expected to decline over time as the remainder of the operating deficit reserve will be used by the end of FY26. Interest rates are projected at 3.4 percent for the year, down from 3.6 percent assumed in the FY26 amended budget.

Non-operating Revenues

MTS receives a variety of non-operating revenues that primarily consist of federal, state and local subsidy funds. These revenues fund both the operating and capital improvement program (CIP) budget. Additionally, there are reserve revenues, which reflect projected changes to the reserve balances of the For-Hire Vehicle (FHV) Administration and San Diego & Arizona Eastern (SD&AE), both self-funded entities.

Subsidy Revenue

Subsidy revenue included in the operating budget is detailed in Section 3.05. MTS is budgeting $366.1 million, an increase of $77.3 million (26.8 percent) in subsidy revenue for FY27.

Subsidy revenue included in the CIP budget is detailed in Section 8.02. MTS is budgeting $109.4 million in subsidy revenue in the FY27 CIP, a decrease of $54.0 million (-33.0 percent).

Federal Transit Administration (FTA) Recurring Revenues

On November 15, 2021, President Biden signed the Bipartisan Infrastructure Law, reauthorizing surface transportation programs through Federal FY (FFY) 2026. The legislation establishes the legal authority to commence and continue Federal Transit Administration (FTA) programs. Each reauthorization amends the Federal Transit Laws codified in 49 USC Chapter 53. FTA funding is structured on a reimbursement basis (after expenses are incurred), and funds both the CIP and operating budgets.

The reauthorization provides for the following funding streams MTS commonly receives:

- 5307 Urban Area Formula Grants for capital improvements and preventive maintenance
- 5337 State of Good Repair Funding for capital improvements and preventive maintenance
- 5339 Bus and Bus Facilities Funding for capital improvements
- 5311 Formula Grants for Rural Areas Funding for rural service operations
- 5311(f) Inter-City Bus Program Funding for rural service operations connecting to inter-city network

MTS's share of these recurring federal revenues in the operating budget is expected to increase by $6.0 million from the FY26 amended budget to $85.0 million in total.

Section 5307 / 5337 / 5339 Capital and Preventive Maintenance

As the region's Metropolitan Planning Organization (MPO), SANDAG apportions the 5307, 5337, and 5339 formula funds between MTS and the North County Transit District (NCTD) based on service area populations. Prior to the apportionments, SANDAG deducts funds from Section 5307 for funding the region's vanpool program. MTS receives approximately 70 percent while NCTD receives approximately 30 percent of these federal formula funds. The funding levels for each section are estimates.

The FY27 MTS operating and CIP budgets will serve as the basis for the federal formula grant applications. The FTA requires submission of grant applications to obligate annual appropriations under Sections 5307, 5337, and 5339.

Section 5307 Urbanized Area Formula Program is a block grant program in which each urbanized area over 50,000 in population receives financial assistance to provide public transit. The formula for determining each metropolitan area's share of funds is based on an urbanized area's population, population density, levels of existing fixed-guideway service, and levels of existing bus service and ridership. The Section 5307 program is designed to meet routine capital needs and may not be used for operating assistance. However, the Transportation Equity Act for the 21st Century (TEA 21) expanded the definition of capital to include preventative maintenance, thereby, in effect, mitigating the relative lack of federal assistance for operations. In addition to the expanded definition of capital, the Section 5307 Urbanized Area Formula Program also allows for a 10 percent maximum of the allocation to support operations of ADA complementary paratransit service. For FFY 2026, the estimated allocation for the MTS Section 5307 program is $64.9 million.

Section 5337 State of Good Repair is also a formula-based program dedicated to repairing and upgrading the nation's rail transit systems, along with high-intensity motor bus systems, that use high-occupancy vehicle lanes, including bus rapid transit (BRT). Section 5337 includes funding previously provided through Section 5309 Fixed Guideway Rail Modernization Formula Program. Projects are limited to replacement and rehabilitation or capital projects that are required to maintain public transportation systems in a state of good repair. For FFY 2026, the Section 5337 funds MTS allocation estimate is $47.4 million.

Section 5339 funding provides capital funding to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. For FFY 2026, the Section 5339 funds MTS allocation estimate is $4.5 million.

In FY27, MTS will use both Section 5307 and 5337 funds for preventive maintenance totaling $78.0 million. The FTA also allows the utilization of up to 10 percent of Section 5307 funding for ADA operations, resulting in an allocation of $6.4 million in FY27.

The remaining federal formula funding will fund the FY27 CIP.

Other Federal Revenue

Section 5311 formula funding is allocated to the state of California Department of Transportation, who then awards it to sub-recipients for rural capital improvements and to supplement operating costs. Funding for FY27 is projected to be $550,000.

MTS was awarded $443,000 in Caltrans Sustainable Communities funding (federal passthrough) for the Otay Mesa Planning Study project. $300,000 of the overall award is budgeted in the FY27 operating budget based on anticipated spending. The remaining balance will be budgeted in future fiscal years.

MTS was recently awarded $405,000 in Department of Homeland Security (DHS) Transit Security Grant Program (TSGP) funding to support existing canine security patrols. The FY27 operating budget includes $200,000 of the total award based on projected expenses for the canine/handler teams in FY27.

Transportation Development Act (TDA) Revenue

TDA provides funding for public transit operators. This state fund is one-quarter of a percent of the 7.75 percent sales tax assessed in the region. SANDAG is responsible for apportionment of these funds within the San Diego region.

Regional TDA cash receipts are projected to increase 1.0 percent versus FY26 projected cash receipts. MTS files an annual TDA claim based on San Diego Association of Governments (SANDAG) projections, and that claim amount is the amount received, regardless of actual sales tax performance. If sales tax receipts outperform the claim amount, excess funds are stored in a reserve at the County. If sales tax receipts underperform the claim amount, funds are drawn from the County reserve.

The overall amount of TDA projected for FY27, available for both capital and operations, is increasing by $3.1 million (2.3 percent) from the FY26 amended budget based on projected sales tax receipts by SANDAG. The overall increase is higher than the 1.0% increase in receipts projected by SANDAG, because the FY26 TDA claim included a one-time correction related to a prior fiscal year. TDA revenue in the operating budget is increasing by $26.7 million (25.0 percent) from the FY26 amended budget, after Board direction to shift $50.0 million from the FY27 capital budget to the FY27 operating budget.

State Transit Assistance (STA) Revenue

STA funding comes from the Public Transportation Act (PTA), which derives its revenue from the state sales tax on diesel fuel. This funding was augmented by the Road Repair and Accountability Act of 2017, or Senate Bill 1 (SB1), which was signed by the Governor on April 28, 2017. For FY27, the estimated STA funding is $30.1 million, of which $18.8 million is planned in the CIP with the remaining $11.3 million included in the operating budget.

MTS also receives a separate STA allocation for State of Good Repair (SGR) program funding from SB1, which is funded from a portion of a new transportation improvement fee on vehicle registration. Receipts for FY26 will provide $5.8 million to MTS's FY27 CIP.

Other State Revenue

The 2014-15 State of California Budget provides $832 million to the Greenhouse Gas Reduction Fund (GHGRF) from Cap-and-Trade auction proceeds to support existing and pilot programs that will reduce GHG emissions and benefit disadvantaged communities. Transit operators are eligible recipients for several of the programs which will be funded from the GHGRF, most of which are competitive programs.

Senate Bill (SB) 125 amended the Budget Act of 2023 to appropriate $4 billion of General Funds to the Transit and Intercity Rail Capital Program (TIRCP) over multiple fiscal years. SB125 also establishes a $1.1 billion Zero-Emission Transit Capital Program (ZETCP) over multiple fiscal years. MTS is estimated to receive approximately $284 million in total over multiple fiscal years, comprised of $237.3 million in TIRCP funding and $46.3 million in ZETCP funding. TIRCP funding can be used for both capital and operations. Of the $237.3 million in TIRCP funding, $26.0 million was programmed in the FY25 CIP for the Orange Line Modernization Project, and the remainder will be used in the operating budget over multiple fiscal years. TIRCP revenue is projected to be $52.3 million in the FY27 operating budget, an increase of $38.7 million from the FY26 operating budget. The FY27 operating budget includes $3.5 million for security enhancements, $3.7 million for Route 227 (Iris Rapid) operations, $547,000 for Route 910 (Overnight Express) operations, $1.9 million for Trolley service enhancements (15-minute service on all lines), and $42.6 million for balancing the structural deficit. The FY27 CIP includes $5.6 million in ZETCP funding for the battery electric bus charging infrastructure at the Imperial Avenue and Kearny Mesa bus divisions. To date, MTS has received $17.3 million of the $46.3 million in total ZETCP funding estimated by the state, leaving $29.0 million in future payments from the state. The $5.6 million of ZETCP funding in the FY27 CIP is part of the $29.0 million that has not been received yet and is dependent upon the state appropriating the funds as originally planned. Beyond the $5.6 million in FY27 CIP, future payments have not been programmed and will not be programmed until the cash is received.

The Low Carbon Transit Operations Program (LCTOP) is an annual funding program that is distributed by the same formula as STA funding. The FY27 CIP includes $8.5 million in LCTOP funds for zero emission bus purchases.

Over the last few years, MTS has received multiple competitive grant awards from the Transit and Intercity Rail Capital Program (TIRCP). The FY27 CIP includes $6.3 million for phase two of the Orange Line Modernization project.

TransNet Revenue

In November of 2004, area voters approved a 40-year extension of the one-half cent sales tax original ordinance that was set to expire in 2008 (TransNet II). This approval had two impacts; first, it assured and slightly improved the original TransNet funding beyond 2008; second, the Bus Rapid Transit (BRT), Superloop, and Midcoast Programs will receive most of its funding from TransNet II.

For FY27, TransNet operating support funding is $41.9 million and ADA funding is $1.3 million. This totals $43.1 million for FY27, which is an increase of $1.2 million (3.0 percent increase) from the FY26 amended budget. This increase is due to the projected increases in regional sales tax receipts.

MTS also receives TransNet as operating assistance for TransNet funded services, which includes Superloop, I-15 BRT, Mid-City Rapid, South Bay BRT, and Mid-Coast. TransNet operating assistance is projected to be $39.4 million in FY27, an increase of $4.5 million from the FY26 amended budget. The increase is due to increasing net expenses for these services as well as a $2.0 million increase due to SANDAG providing less FasTrak funding in the FY 2027 budget, and funding instead with TransNet. In total, TransNet revenues are projected to increase by $5.8 million (7.5 percent) from the FY26 amended budget.

Other Local Subsidies

The City of San Diego provides Maintenance of Effort funds to aid ADA efforts. For FY27, these funds total $120,000.

SANDAG provides funding, through FasTrak tolls, to operate services along the Interstate 15 corridor. The budgeted FasTrak funding supporting this operation totals $1.0 million, a decrease of $2.0 million from the FY26 amended budget. This is due to a $2.0 million reduction in the amount of FasTrak revenue being provided by SANDAG in FY27 (instead funded with TransNet subsidy).

Other Non-Operating Revenue

Other non-operating revenue is detailed in Section 3.06. Non-operating revenue utilized in the FY27 operating budget is expected to decrease by $68.1 million versus the prior year, particularly due to no longer utilizing funds from the Operating Deficit Reserve to balance the proposed budget.

Reserve Revenues

The creation of an operating budget deficit reserve was approved by the Board in April 2023. MTS contributed $57.0 million in excess revenues over expenses to the Operating Budget deficit reserve in FY23 and contributed an additional $30.2 million at the end of FY24, bringing the FY24 reserve balance to $87.1 million. MTS began utilizing the operating deficit reserve in FY25, with $19.5 million used to balance at year end. The current reserve balance is $67.6 million and is expected to be utilized entirely during FY26. The FY27 proposed operating budget does not include any operating deficit reserve funds.

The FY27 operating budget does not include any usage of or contribution to the MTS Contingency Reserve.

FHVA and SD&AE are self-funded entities who must balance their operating expenses with operating revenues or their contingency reserve revenue. FHVA is projected to utilize $116,000 from its contingency reserves as total FY27 projected expenses exceed projected revenues. SD&AE is

projected to add $199,000 to its contingency reserves as total FY27 projected revenues exceed projected expenses.

A full schedule of all contingency reserves is detailed in Section 10.06.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
REVENUE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 3.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE AMENDED/ ORIGINAL	% CHANGE AMENDED/ ORIGINAL
OPERATING REVENUE					
PASSENGER REVENUE	77,896,658	80,820,126	83,014,390	2,194,264	2.7%
OTHER INCOME	36,176,729	33,478,163	33,489,800	11,637	0.0%
TOTAL OPERATING REVENUE	114,073,387	114,298,289	116,504,190	2,205,901	1.9%
NON OPERATING REVENUE					
SUBSIDY REVENUE					
FEDERAL REVENUE	76,351,734	79,320,613	85,453,312	6,132,699	7.7%
FEDERAL REVENUE - CARES/ARP	47,416,746	-	-	-	-
TRANSPORTATION DEVELOPMENT ACT (TDA)	92,541,132	106,728,725	133,432,034	26,703,309	25.0%
STATE TRANSIT ASSISTANCE (STA)	5,960,988	9,337,501	11,300,000	1,962,499	21.0%
STATE REVENUE - OTHER	9,017,648	13,534,886	52,264,207	38,729,321	286.1%
TRANSNET	73,965,206	76,743,441	82,508,410	5,764,969	7.5%
OTHER LOCAL SUBSIDIES	4,351,768	3,120,000	1,120,000	(2,000,000)	-64.1%
TOTAL SUBSIDY REVENUE	309,605,221	288,785,166	366,077,962	77,292,797	26.8%
OTHER REVENUE					
OTHER FUNDS	-	-	-	-	-
RESERVES REVENUE	19,359,078	67,981,456	(82,598)	(68,064,054)	-100.1%
TOTAL OTHER REVENUE	19,359,078	67,981,456	(82,598)	(68,064,054)	-100.1%
TOTAL NON OPERATING REVENUE	328,964,299	356,766,622	365,995,365	9,228,743	2.6%
GRAND TOTAL REVENUES	**443,037,686**	**471,064,911**	**482,499,555**	**11,434,644**	**2.4%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
PASSENGER REVENUE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 3.03

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
PASSENGER REVENUE					
BUS OPERATIONS	20,708,203	20,779,433	20,988,765	209,332	1.0%
RAIL OPERATIONS	31,643,598	32,900,326	34,379,372	1,479,046	4.5%
MCS - FIXED ROUTE	23,975,174	25,351,465	25,694,734	343,269	1.4%
MCS - PARATRANSIT	1,569,684	1,788,902	1,951,519	162,617	9.1%
TOTAL PASSENGER REVENUE	**77,896,658**	**80,820,126**	**83,014,390**	**2,194,264**	**2.7%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OTHER OPERATING REVENUE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 3.04

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OTHER INCOME					
BUS OPERATIONS	29,900	31,000	30,000	(1,000)	-3.2%
RAIL OPERATIONS	1,168,069	671,941	1,044,720	372,779	55.5%
MCS - FIXED ROUTE	-	-	-	-	-
MCS - PARATRANSIT	-	-	-	-	-
CORONADO FERRY	-	-	-	-	-
ADMINISTRATIVE	33,872,458	31,620,877	31,187,312	(433,565)	-1.4%
TAXICAB	821,253	827,345	861,425	34,080	4.1%
SD&AE	285,049	327,000	366,343	39,343	12.0%
TOTAL OTHER INCOME	36,176,729	33,478,163	33,489,800	11,637	0.0%
TOTAL OTHER OPERATING INCOME	**36,176,729**	**33,478,163**	**33,489,800**	**11,637**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
SUBSIDY REVENUE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 3.05

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
FEDERAL					
FEDERAL OTHER	424,068	326,000	500,000	174,000	53.4%
FTA 5307/5337/5339 - PREVENTITIVE MAINTENANCE	68,900,000	72,000,000	78,000,000	6,000,000	8.3%
FTA 5307 - PREVENTITIVE MAINTENANCE ADA	6,399,613	6,399,613	6,403,312	3,699	0.1%
FTA 5311 / 5311(f) - RURAL	628,053	595,000	550,000	(45,000)	-7.6%
TOTAL FEDERAL FUNDS	76,351,734	79,320,613	85,453,312	6,132,699	7.7%
FEDERAL					
FTA 5307 - CARES ACT	47,416,746	-	-	-	-
TOTAL FEDERAL FUNDS	47,416,746	-	-	-	-
TRANSPORTATION DEVELOPMENT ACT (TDA)					
TDA - ARTICLE 4.0 MTS AREA	84,688,566	98,980,362	125,639,516	26,659,154	26.9%
TDA - ARTICLE 4.5 (ADA)	6,930,033	6,776,392	6,879,627	103,235	1.5%
TDA - ARTICLE 8.0	922,533	971,971	912,891	(59,080)	-6.1%
TOTAL TDA FUNDS	92,541,132	106,728,725	133,432,034	26,703,309	25.0%
STATE TRANSIT ASSISTANCE (STA)					
STA - FORMULA	5,960,988	9,337,501	11,300,000	1,962,499	21.0%
TOTAL STA FUNDS	5,960,988	9,337,501	11,300,000	1,962,499	21.0%
STATE REVENUE - OTHER					
CALTRANS	9,000,000	13,534,886	52,264,207	38,729,321	286.1%
MEDICAL	17,648	-	-	-	-
TOTAL STATE FUNDS	9,017,648	13,534,886	52,264,207	38,729,321	286%
TRANSNET					
TRANSNET - 40% OPERATING SUPPORT	39,814,251	40,633,942	41,853,231	1,219,289	3.0%
TRANSNET - ACCESS ADA	1,202,008	1,225,366	1,256,054	30,688	2.5%
TRANSNET - SUPERLOOP	3,095,842	3,645,412	3,692,305	46,893	1.3%
TRANSNET - BRT	29,853,105	31,238,721	35,706,819	4,468,099	14.3%
TOTAL TRANSNET FUNDS	73,965,206	76,743,441	82,508,410	5,764,969	7.5%
OTHER LOCAL					
CITY OF SAN DIEGO	120,526	120,000	120,000	-	0.0%
SANDAG - INLAND BREEZE	3,500,000	3,000,000	1,000,000	(2,000,000)	-66.7%
OTHER	731,242	-	-	-	-
OTHER LOCAL FUNDS	4,351,768	3,120,000	1,120,000	(2,000,000)	-64.1%
TOTAL SUBSIDY REVENUE	**309,605,221**	**288,785,166**	**366,077,962**	**77,292,797**	**26.8%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OTHER NON OPERATING REVENUE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 3.06

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
RESERVES REVENUE					
MTS CONTINGENCY RESERVE	-	-	-	-	-
OPERATING DEFICIT RESERVE	19,540,356	67,607,783	-	(67,607,783)	-100.0%
TAXICAB RESERVES	24,369	254,806	116,321	(138,485)	-54.3%
SD&AE RESERVE	(205,648)	118,867	(198,919)	(317,786)	-267.3%
TOTAL RESERVES REVENUE	19,359,078	67,981,456	(82,598)	(68,064,054)	-100.1%
TOTAL OTHER NON OPERATING REVENUE	**19,359,078**	**67,981,456**	**(82,598)**	**(68,064,054)**	**-100.1%**

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OPERATIONS BUDGET
FISCAL YEAR 2027
SECTION 4.01

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	77,896,658	80,820,126	83,014,390	2,194,264	2.7%
OTHER OPERATING REVENUE	1,197,969	702,941	1,074,720	371,779	52.9%
TOTAL OPERATING REVENUES	**79,094,627**	**81,523,067**	**84,089,110**	**2,566,043**	**3.1%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	302,214,724	285,239,334	361,453,817	76,214,483	26.7%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	19,540,356	67,607,783	-	(67,607,783)	-100.0%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	19,540,356	67,607,783	-	(67,607,783)	-100.0%
TOTAL NON OPERATING REVENUE	**321,755,081**	**352,847,117**	**361,453,817**	**8,606,700**	**2.4%**
TOTAL COMBINED REVENUES	**400,849,708**	**434,370,184**	**445,542,927**	**11,172,743**	**2.6%**
OPERATING EXPENSES					
LABOR EXPENSES	92,009,119	96,181,948	100,066,019	3,884,071	4.0%
FRINGE EXPENSES	68,200,223	70,356,136	68,816,853	(1,539,283)	-2.2%
TOTAL PERSONNEL EXPENSES	**160,209,341**	**166,538,084**	**168,882,872**	**2,344,788**	**1.4%**
SECURITY EXPENSES	1,247,599	1,315,122	1,419,319	104,197	7.9%
REPAIR/MAINTENANCE SERVICES	10,797,644	14,932,357	12,402,291	(2,530,066)	-16.9%
ENGINE AND TRANSMISSION REBUILD	1,328,910	1,154,468	1,714,000	559,532	48.5%
OTHER OUTSIDE SERVICES	9,703,339	11,001,377	8,495,938	(2,505,439)	-22.8%
PURCHASED TRANSPORTATION	109,099,796	111,607,521	114,927,329	3,319,808	3.0%
TOTAL OUTSIDE SERVICES	**132,177,287**	**140,010,845**	**138,958,877**	**(1,051,968)**	**-0.8%**
LUBRICANTS	490,290	484,000	527,000	43,000	8.9%
TIRES	1,351,794	1,562,300	1,627,300	65,000	4.2%
OTHER MATERIALS AND SUPPLIES	16,290,390	19,207,016	19,265,710	58,694	0.3%
TOTAL MATERIALS AND SUPPLIES	**18,132,474**	**21,253,316**	**21,420,010**	**166,694**	**0.8%**
GAS/DIESEL/PROPANE	2,626,509	2,901,975	3,520,661	618,686	21.3%
CNG	12,804,983	13,673,143	13,384,413	(288,730)	-2.1%
TRACTION POWER	23,784,125	27,731,480	28,615,015	883,535	3.2%
UTILITIES	5,184,603	5,447,633	5,806,999	359,366	6.6%
TOTAL ENERGY	**44,400,221**	**49,754,231**	**51,327,088**	**1,572,857**	**3.2%**
RISK MANAGEMENT	**9,900,789**	**12,423,566**	**14,474,531**	**2,050,965**	**16.5%**
GENERAL AND ADMINISTRATIVE	**1,103,989**	**1,322,022**	**1,140,611**	**(181,411)**	**-13.7%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**1,713,877**	**1,676,466**	**1,753,120**	**76,654**	**4.6%**
TOTAL OPERATING EXPENSES	**367,637,978**	**392,978,530**	**397,957,109**	**4,978,579**	**1.3%**
NET OPERATING SUBSIDY	**(288,543,351)**	**(311,455,463)**	**(313,867,999)**	**2,412,536**	**0.8%**
OVERHEAD ALLOCATION	**(33,211,729)**	**(41,391,655)**	**(47,585,818)**	**(6,194,163)**	**15.0%**
ADJUSTED NET OPERATING SUBSIDY	**(321,755,080)**	**(352,847,118)**	**(361,453,817)**	**8,606,699**	**2.4%**
TOTAL REVENUES LESS TOTAL EXPENSES	**0**	**(1)**	**(0)**	**(1)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BUS OPERATIONS BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	20,708,203	20,779,433	20,988,765	209,332	1.0%
OTHER OPERATING REVENUE	29,900	31,000	30,000	(1,000)	-3.2%
TOTAL OPERATING REVENUES	**20,738,103**	**20,810,433**	**21,018,765**	**208,332**	**1.0%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	95,798,306	79,346,910	115,467,305	36,120,395	45.5%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	8,151,292	34,607,783	-	(34,607,783)	-100.0%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	8,151,292	34,607,783	-	(34,607,783)	-100.0%
TOTAL NON OPERATING REVENUE	**103,949,598**	**113,954,693**	**115,467,305**	**1,512,612**	**1.3%**
TOTAL COMBINED REVENUES	**124,687,701**	**134,765,126**	**136,486,070**	**1,720,944**	**1.3%**
OPERATING EXPENSES					
LABOR EXPENSES	52,255,665	52,811,260	54,557,358	1,746,098	3.3%
FRINGE EXPENSES	45,786,281	48,004,166	44,757,189	(3,246,977)	-6.8%
TOTAL PERSONNEL EXPENSES	**98,041,946**	**100,815,426**	**99,314,547**	**(1,500,879)**	**-1.5%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	938,828	1,021,465	1,056,524	35,059	3.4%
ENGINE AND TRANSMISSION REBUILD	204,222	265,800	395,000	129,200	48.6%
OTHER OUTSIDE SERVICES	1,433,953	1,606,501	1,028,542	(577,959)	-36.0%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**2,577,003**	**2,893,766**	**2,480,066**	**(413,700)**	**-14.3%**
LUBRICANTS	178,985	162,000	162,000	-	0.0%
TIRES	1,337,422	1,527,300	1,602,300	75,000	4.9%
OTHER MATERIALS AND SUPPLIES	6,312,977	6,321,726	6,305,038	(16,688)	-0.3%
TOTAL MATERIALS AND SUPPLIES	**7,829,384**	**8,011,026**	**8,069,338**	**58,312**	**0.7%**
GAS/DIESEL/PROPANE	226,835	241,353	262,644	21,291	8.8%
CNG	6,330,015	6,718,857	6,407,834	(311,023)	-4.6%
TRACTION POWER	109,290	100,000	150,000	50,000	50.0%
UTILITIES	854,908	931,825	942,297	10,472	1.1%
TOTAL ENERGY	**7,521,048**	**7,992,035**	**7,762,775**	**(229,260)**	**-2.9%**
RISK MANAGEMENT	**4,195,430**	**6,157,975**	**7,870,006**	**1,712,031**	**27.8%**
GENERAL AND ADMINISTRATIVE	**536,299**	**731,790**	**555,932**	**(175,858)**	**-24.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**572,334**	**620,000**	**643,000**	**23,000**	**3.7%**
TOTAL OPERATING EXPENSES	**121,273,445**	**127,222,018**	**126,695,664**	**(526,354)**	**-0.4%**
NET OPERATING SUBSIDY	**(100,535,342)**	**(106,411,585)**	**(105,676,899)**	**(734,686)**	**-0.7%**
OVERHEAD ALLOCATION	**(3,414,256)**	**(7,543,110)**	**(9,790,407)**	**(2,247,296)**	**29.8%**
ADJUSTED NET OPERATING SUBSIDY	**(103,949,598)**	**(113,954,695)**	**(115,467,306)**	**1,512,610**	**1.3%**
TOTAL REVENUES LESS TOTAL EXPENSES	**(0)**	**(2)**	**(1)**	**(2)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
RAIL OPERATIONS BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.03

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	31,643,598	32,900,326	34,379,372	1,479,046	4.5%
OTHER OPERATING REVENUE	1,168,069	671,941	1,044,720	372,779	55.5%
TOTAL OPERATING REVENUES	**32,811,666**	**33,572,267**	**35,424,092**	**1,851,825**	**5.5%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	102,210,121	99,724,760	135,546,822	35,822,062	35.9%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	11,389,064	33,000,000	-	(33,000,000)	-100.0%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	11,389,064	33,000,000	-	(33,000,000)	-100.0%
TOTAL NON OPERATING REVENUE	**113,599,185**	**132,724,760**	**135,546,822**	**2,822,062**	**2.1%**
TOTAL COMBINED REVENUES	**146,410,852**	**166,297,027**	**170,970,914**	**4,673,887**	**2.8%**
OPERATING EXPENSES					
LABOR EXPENSES	39,177,188	42,781,516	44,895,661	2,114,145	4.9%
FRINGE EXPENSES	21,813,168	21,696,473	23,384,963	1,688,490	7.8%
TOTAL PERSONNEL EXPENSES	**60,990,356**	**64,477,989**	**68,280,624**	**3,802,635**	**5.9%**
SECURITY EXPENSES	207,656	206,963	231,698	24,735	12.0%
REPAIR/MAINTENANCE SERVICES	9,787,003	13,858,479	11,335,167	(2,523,312)	-18.2%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	4,020,939	5,294,365	3,384,400	(1,909,965)	-36.1%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**14,015,597**	**19,359,807**	**14,951,265**	**(4,408,542)**	**-22.8%**
LUBRICANTS	311,305	322,000	365,000	43,000	13.4%
TIRES	14,372	35,000	25,000	(10,000)	-28.6%
OTHER MATERIALS AND SUPPLIES	9,844,586	12,756,885	12,857,152	100,267	0.8%
TOTAL MATERIALS AND SUPPLIES	**10,170,263**	**13,113,885**	**13,247,152**	**133,267**	**1.0%**
GAS/DIESEL/PROPANE	499,006	522,650	558,900	36,250	6.9%
CNG	-	-	-	-	-
TRACTION POWER	23,439,336	27,386,480	28,184,015	797,535	2.9%
UTILITIES	3,449,770	3,513,077	3,803,747	290,670	8.3%
TOTAL ENERGY	**27,388,112**	**31,422,207**	**32,546,662**	**1,124,455**	**3.6%**
RISK MANAGEMENT	**5,690,359**	**6,250,591**	**6,589,525**	**338,934**	**5.4%**
GENERAL AND ADMINISTRATIVE	**560,240**	**568,929**	**568,129**	**(800)**	**-0.1%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**776,420**	**668,021**	**720,675**	**52,654**	**7.9%**
TOTAL OPERATING EXPENSES	**119,591,346**	**135,861,429**	**136,904,032**	**1,042,603**	**0.8%**
NET OPERATING SUBSIDY	**(86,779,680)**	**(102,289,162)**	**(101,479,940)**	**(809,222)**	**-0.8%**
OVERHEAD ALLOCATION	**(26,819,506)**	**(30,435,598)**	**(34,066,882)**	**(3,631,284)**	**11.9%**
ADJUSTED NET OPERATING SUBSIDY	**(113,599,185)**	**(132,724,760)**	**(135,546,822)**	**2,822,062**	**2.1%**
TOTAL REVENUES LESS TOTAL EXPENSES	**(0)**	**(0)**	**0**	**(0)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CONTRACTED BUS OPERATIONS - FIXED ROUTE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.04

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	23,975,174	25,351,465	25,694,734	343,269	1.4%
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**23,975,174**	**25,351,465**	**25,694,734**	**343,269**	**1.4%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	83,462,420	84,660,191	86,201,404	1,541,213	1.8%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**83,462,420**	**84,660,191**	**86,201,404**	**1,541,213**	**1.8%**
TOTAL COMBINED REVENUES	**107,437,594**	**110,011,656**	**111,896,138**	**1,884,482**	**1.7%**
OPERATING EXPENSES					
LABOR EXPENSES	446,291	461,172	484,000	22,828	4.9%
FRINGE EXPENSES	363,417	297,565	307,089	9,524	3.2%
TOTAL PERSONNEL EXPENSES	**809,708**	**758,737**	**791,089**	**32,352**	**4.3%**
SECURITY EXPENSES	1,039,943	1,108,159	1,187,621	79,462	7.2%
REPAIR/MAINTENANCE SERVICES	71,813	50,833	9,000	(41,833)	-82.3%
ENGINE AND TRANSMISSION REBUILD	1,124,687	888,668	1,319,000	430,332	48.4%
OTHER OUTSIDE SERVICES	3,037,257	2,823,350	2,778,084	(45,266)	-1.6%
PURCHASED TRANSPORTATION	90,477,788	92,563,901	93,689,693	1,125,792	1.2%
TOTAL OUTSIDE SERVICES	**95,751,489**	**97,434,911**	**98,983,398**	**1,548,487**	**1.6%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	132,827	128,405	103,520	(24,885)	-19.4%
TOTAL MATERIALS AND SUPPLIES	**132,827**	**128,405**	**103,520**	**(24,885)**	**-19.4%**
GAS/DIESEL/PROPANE	638,883	599,727	650,961	51,234	8.5%
CNG	6,474,968	6,954,286	6,976,579	22,293	0.3%
TRACTION POWER	235,500	245,000	281,000	36,000	14.7%
UTILITIES	879,925	1,002,731	1,060,955	58,224	5.8%
TOTAL ENERGY	**8,229,275**	**8,801,744**	**8,969,495**	**167,751**	**1.9%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**5,625**	**14,553**	**9,700**	**(4,853)**	**-33.3%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**22,603**	**45,445**	**46,445**	**1,000**	**2.2%**
TOTAL OPERATING EXPENSES	**104,951,527**	**107,183,795**	**108,903,647**	**1,719,852**	**1.6%**
NET OPERATING SUBSIDY	**(80,976,353)**	**(81,832,330)**	**(83,208,913)**	**1,376,583**	**1.7%**
OVERHEAD ALLOCATION	**(2,486,067)**	**(2,827,859)**	**(2,992,491)**	**(164,632)**	**5.8%**
ADJUSTED NET OPERATING SUBSIDY	**(83,462,420)**	**(84,660,189)**	**(86,201,404)**	**1,541,215**	**1.8%**
TOTAL REVENUES LESS TOTAL EXPENSES	**0**	**2**	**0**	**2**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CONTRACTED BUS OPERATIONS - PARA TRANSIT BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.05

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	1,569,684	1,788,902	1,951,519	162,617	9.1%
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**1,569,684**	**1,788,902**	**1,951,519**	**162,617**	**9.1%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	20,058,174	20,653,223	23,371,021	2,717,798	13.2%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**20,058,174**	**20,653,223**	**23,371,021**	**2,717,798**	**13.2%**
TOTAL COMBINED REVENUES	**21,627,857**	**22,442,125**	**25,322,540**	**2,880,415**	**12.8%**
OPERATING EXPENSES					
LABOR EXPENSES	129,974	128,000	129,000	1,000	0.8%
FRINGE EXPENSES	112,818	71,000	76,308	5,308	7.5%
TOTAL PERSONNEL EXPENSES	**242,792**	**199,000**	**205,308**	**6,308**	**3.2%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	1,580	1,600	20	1.3%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	970,136	1,041,659	1,065,822	24,163	2.3%
PURCHASED TRANSPORTATION	18,301,898	18,711,804	20,900,765	2,188,961	11.7%
TOTAL OUTSIDE SERVICES	**19,272,034**	**19,755,043**	**21,968,187**	**2,213,144**	**11.2%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	1,261,786	1,538,245	2,048,156	509,911	33.1%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**1,261,786**	**1,538,245**	**2,048,156**	**509,911**	**33.1%**
RISK MANAGEMENT	**15,000**	**15,000**	**15,000**	**-**	**0.0%**
GENERAL AND ADMINISTRATIVE	**1,825**	**6,750**	**6,850**	**100**	**1.5%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**342,520**	**343,000**	**343,000**	**-**	**0.0%**
TOTAL OPERATING EXPENSES	**21,135,957**	**21,857,038**	**24,586,501**	**2,729,463**	**12.5%**
NET OPERATING SUBSIDY	**(19,566,273)**	**(20,068,136)**	**(22,634,982)**	**2,566,846**	**12.8%**
OVERHEAD ALLOCATION	**(491,900)**	**(585,088)**	**(736,039)**	**(150,951)**	**25.8%**
ADJUSTED NET OPERATING SUBSIDY	**(20,058,173)**	**(20,653,224)**	**(23,371,021)**	**2,717,797**	**13.2%**
TOTAL REVENUES LESS TOTAL EXPENSES	**0**	**(1)**	**0**	**(1)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CORONADO FERRY BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.06

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	320,110	331,816	336,871	5,055	1.5%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**320,110**	**331,816**	**336,871**	**5,055**	**1.5%**
TOTAL COMBINED REVENUES	**320,110**	**331,816**	**336,871**	**5,055**	**1.5%**
OPERATING EXPENSES					
LABOR EXPENSES	-	-	-	-	-
FRINGE EXPENSES	-	-	-	-	-
TOTAL PERSONNEL EXPENSES	**-**	**-**	**-**	**-**	**-**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	-	-	-	-	-
PURCHASED TRANSPORTATION	320,110	331,816	336,871	5,055	1.5%
TOTAL OUTSIDE SERVICES	**320,110**	**331,816**	**336,871**	**5,055**	**1.5%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**-**	**-**	**-**	**-**	**-**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**320,110**	**331,816**	**336,871**	**5,055**	**1.5%**
NET OPERATING SUBSIDY	**(320,110)**	**(331,816)**	**(336,871)**	**5,055**	**1.5%**
OVERHEAD ALLOCATION	**-**	**-**	**-**	**-**	**-**
ADJUSTED NET OPERATING SUBSIDY	**(320,110)**	**(331,816)**	**(336,871)**	**5,055**	**1.5%**
TOTAL REVENUES LESS TOTAL EXPENSES	**-**	**-**	**0**	**(0)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
ADMINISTRATIVE PASS THROUGH BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.07

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	365,593	522,434	530,394	7,960	1.5%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**365,593**	**522,434**	**530,394**	**7,960**	**1.5%**
TOTAL COMBINED REVENUES	**365,593**	**522,434**	**530,394**	**7,960**	**1.5%**
OPERATING EXPENSES					
LABOR EXPENSES	-	-	-	-	-
FRINGE EXPENSES	124,539	286,932	291,304	4,372	1.5%
TOTAL PERSONNEL EXPENSES	**124,539**	**286,932**	**291,304**	**4,372**	**1.5%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	241,054	235,502	239,090	3,588	1.5%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**241,054**	**235,502**	**239,090**	**3,588**	**1.5%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**-**	**-**	**-**	**-**	**-**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**365,593**	**522,434**	**530,394**	**7,960**	**1.5%**
NET OPERATING SUBSIDY	**(365,593)**	**(522,434)**	**(530,394)**	**7,960**	**1.5%**
OVERHEAD ALLOCATION	**-**	**-**	**-**	**-**	**-**
ADJUSTED NET OPERATING SUBSIDY	**(365,593)**	**(522,434)**	**(530,394)**	**7,960**	**1.5%**
TOTAL REVENUES LESS TOTAL EXPENSES	**-**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
ADMINISTRATIVE PASS THROUGH BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 4.08

	AVAILABLE FUNDING FY27
City of Poway	**92,679**
City of El Cajon	**140,315**
City of Lemon Grove	**187,075**
City of La Mesa	**79,507**
City of Coronado	**30,818**
Grand Total	**530,394**

Transportation Development Act (TDA) funding passed through to the above cities can be used for all purposes necessary and convenient to the operation and maintenance of the MTS public transportation system.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
ADMINISTRATIVE BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 5.01

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	33,872,458	31,620,877	31,187,312	(433,565)	-1.4%
TOTAL OPERATING REVENUES	**33,872,458**	**31,620,877**	**31,187,312**	**(433,565)**	**-1.4%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	7,390,497	3,545,833	4,624,145	1,078,312	30.4%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**7,390,497**	**3,545,833**	**4,624,145**	**1,078,312**	**30.4%**
TOTAL COMBINED REVENUES	**41,262,955**	**35,166,710**	**35,811,457**	**644,747**	**1.8%**
OPERATING EXPENSES					
LABOR EXPENSES	23,229,836	24,783,831	26,230,071	1,446,240	5.8%
FRINGE EXPENSES	10,529,754	10,766,767	11,855,919	1,089,152	10.1%
TOTAL PERSONNEL EXPENSES	**33,759,589**	**35,550,598**	**38,085,990**	**2,535,392**	**7.1%**
SECURITY EXPENSES	12,895,232	13,959,500	14,892,176	932,676	6.7%
REPAIR/MAINTENANCE SERVICES	351,686	319,900	235,900	(84,000)	-26.3%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	15,623,405	17,861,341	20,447,977	2,586,636	14.5%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**28,870,322**	**32,140,741**	**35,576,053**	**3,435,312**	**10.7%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	183,400	79,748	519,359	439,611	551.3%
TOTAL MATERIALS AND SUPPLIES	**183,400**	**79,748**	**519,359**	**439,611**	**551.3%**
GAS/DIESEL/PROPANE	231,725	230,600	265,600	35,000	15.2%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	1,054,238	998,021	1,013,245	15,224	1.5%
TOTAL ENERGY	**1,285,963**	**1,228,621**	**1,278,845**	**50,224**	**4.1%**
RISK MANAGEMENT	**864,224**	**1,033,106**	**1,138,086**	**104,980**	**10.2%**
GENERAL AND ADMINISTRATIVE	**5,730,424**	**5,928,068**	**6,188,673**	**260,605**	**4.4%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**458,458**	**632,120**	**663,726**	**31,606**	**5.0%**
TOTAL OPERATING EXPENSES	**71,152,381**	**76,593,002**	**83,450,732**	**6,857,730**	**9.0%**
NET OPERATING SUBSIDY	**(37,279,923)**	**(44,972,125)**	**(52,263,420)**	**7,291,295**	**16.2%**
OVERHEAD ALLOCATION	**33,210,996**	**41,426,292**	**47,639,275**	**6,212,982**	**15.0%**
ADJUSTED NET OPERATING SUBSIDY	**(4,068,927)**	**(3,545,833)**	**(4,624,145)**	**1,078,313**	**30.4%**
TOTAL REVENUES LESS TOTAL EXPENSES	**3,321,569**	**0**	**-**	**0**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS BUDGET
FISCAL YEAR 2027
SECTION 5.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	-	-	-	-	-
FRINGE EXPENSES	-	-	-	-	-
TOTAL PERSONNEL EXPENSES	**-**	**-**	**-**	**-**	**-**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	-	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**-**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**57,876**	**64,700**	**70,700**	**6,000**	**9.3%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**57,876**	**64,700**	**70,700**	**6,000**	**9.3%**
NET OPERATING SUBSIDY	**(57,876)**	**(64,700)**	**(70,700)**	**6,000**	**9.3%**
OVERHEAD ALLOCATION	**70,500**	**64,700**	**70,700**	**6,000**	**9.3%**
ADJUSTED NET OPERATING SUBSIDY	**12,624**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**12,624**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS ADMINISTRATION BUDGET
FISCAL YEAR 2027
SECTION 5.03

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	118,606	100,000	191,782	91,782	91.8%
FRINGE EXPENSES	49,280	17,050	30,092	13,042	76.5%
TOTAL PERSONNEL EXPENSES	**167,886**	**117,050**	**221,874**	**104,824**	**89.6%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	-	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**-**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**-**	**-**	**-**	**-**	**-**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**167,886**	**117,050**	**221,874**	**104,824**	**89.6%**
NET OPERATING SUBSIDY	**(167,886)**	**(117,050)**	**(221,874)**	**104,824**	**89.6%**
OVERHEAD ALLOCATION	**237,677**	**117,050**	**221,874**	**104,824**	**89.6%**
ADJUSTED NET OPERATING SUBSIDY	**69,791**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**69,791**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BUS BENCH/SHELTER BUDGET
FISCAL YEAR 2027
SECTION 5.04

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	2,309,220	2,252,244	2,285,676	33,432	1.5%
TOTAL OPERATING REVENUES	**2,309,220**	**2,252,244**	**2,285,676**	**33,432**	**1.5%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**2,309,220**	**2,252,244**	**2,285,676**	**33,432**	**1.5%**
OPERATING EXPENSES					
LABOR EXPENSES	64,349	69,000	71,760	2,760	4.0%
FRINGE EXPENSES	45,727	56,524	63,862	7,338	13.0%
TOTAL PERSONNEL EXPENSES	**110,076**	**125,524**	**135,622**	**10,098**	**8.0%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	4,871	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**4,871**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**-**	**95,000**	**106,000**	**11,000**	**11.6%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**114,947**	**220,524**	**241,622**	**21,098**	**9.6%**
NET OPERATING SUBSIDY	**2,194,273**	**2,031,720**	**2,044,054**	**(12,334)**	**0.6%**
OVERHEAD ALLOCATION	**(2,180,258)**	**(2,031,720)**	**(2,044,054)**	**(12,334)**	**0.6%**
ADJUSTED NET OPERATING SUBSIDY	**14,015**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**14,015**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CAPITAL PROJECTS
FISCAL YEAR 2027
SECTION 5.05

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	1,029,394	1,080,000	1,212,607	132,607	12.3%
FRINGE EXPENSES	(219,384)	(300,968)	(344,959)	(43,991)	14.6%
TOTAL PERSONNEL EXPENSES	**810,010**	**779,032**	**867,648**	**88,616**	**11.4%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	1,009	500	500	-	0.0%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**1,009**	**500**	**500**	**-**	**0.0%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**27**	**2,600**	**500**	**(2,100)**	**-80.8%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**811,046**	**782,132**	**868,648**	**86,516**	**11.1%**
NET OPERATING SUBSIDY	**(811,046)**	**(782,132)**	**(868,648)**	**86,516**	**11.1%**
OVERHEAD ALLOCATION	**843,156**	**782,132**	**868,648**	**86,516**	**11.1%**
ADJUSTED NET OPERATING SUBSIDY	**32,110**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**32,110**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
EXECUTIVE BUDGET
FISCAL YEAR 2027
SECTION 5.06

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	588,253	701,000	744,695	43,695	6.2%
FRINGE EXPENSES	118,456	119,700	108,276	(11,424)	-9.5%
TOTAL PERSONNEL EXPENSES	**706,709**	**820,700**	**852,971**	**32,271**	**3.9%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	123,673	123,221	105,700	(17,521)	-14.2%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**123,673**	**123,221**	**105,700**	**(17,521)**	**-14.2%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	100	-	(100)	-100.0%
TOTAL ENERGY	**-**	**100**	**-**	**(100)**	**-100.0%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**23,270**	**20,900**	**15,500**	**(5,400)**	**-25.8%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**853,651**	**964,921**	**974,171**	**9,250**	**1.0%**
NET OPERATING SUBSIDY	**(853,651)**	**(964,921)**	**(974,171)**	**9,250**	**1.0%**
OVERHEAD ALLOCATION	**981,205**	**964,921**	**974,171**	**9,250**	**1.0%**
ADJUSTED NET OPERATING SUBSIDY	**127,554**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**127,554**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
FARE SYSTEM BUDGET
FISCAL YEAR 2027
SECTION 5.07

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	2,392,336	1,457,942	1,330,000	(127,942)	-8.8%
TOTAL OPERATING REVENUES	**2,392,336**	**1,457,942**	**1,330,000**	**(127,942)**	**-8.8%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	588,890	624,145	35,255	6.0%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**588,890**	**624,145**	**35,255**	**6.0%**
TOTAL COMBINED REVENUES	**2,392,336**	**2,046,832**	**1,954,145**	**(92,687)**	**-4.5%**
OPERATING EXPENSES					
LABOR EXPENSES	946,421	1,025,200	1,048,149	22,949	2.2%
FRINGE EXPENSES	(170,599)	125,975	127,702	1,727	1.4%
TOTAL PERSONNEL EXPENSES	**775,822**	**1,151,175**	**1,175,851**	**24,676**	**2.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	1,867,780	2,011,760	2,038,110	26,350	1.3%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**1,867,780**	**2,011,760**	**2,038,110**	**26,350**	**1.3%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	56,669	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**56,669**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	72,630	68,421	69,000	579	0.8%
TOTAL ENERGY	**72,630**	**68,421**	**69,000**	**579**	**0.8%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**2,160,504**	**2,523,047**	**2,516,834**	**(6,213)**	**-0.2%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**4,933,405**	**5,754,403**	**5,799,795**	**45,392**	**0.8%**
NET OPERATING SUBSIDY	**(2,541,069)**	**(4,296,461)**	**(4,469,795)**	**173,334**	**4.0%**
OVERHEAD ALLOCATION	**2,926,432**	**3,707,571**	**3,845,650**	**138,079**	**3.7%**
ADJUSTED NET OPERATING SUBSIDY	**385,362**	**(588,890)**	**(624,145)**	**35,255**	**6.0%**
TOTAL REVENUES LESS TOTAL EXPENSES	**385,362**	**(0)**	**-**	**(0)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
FINANCE BUDGET
FISCAL YEAR 2027
SECTION 5.08

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	2,029,136	2,271,000	2,361,800	90,800	4.0%
FRINGE EXPENSES	367,145	367,870	410,379	42,509	11.6%
TOTAL PERSONNEL EXPENSES	**2,396,281**	**2,638,870**	**2,772,179**	**133,309**	**5.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	10,265	46,200	84,500	38,300	82.9%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**10,265**	**46,200**	**84,500**	**38,300**	**82.9%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**9,368**	**8,100**	**8,600**	**500**	**6.2%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**2,415,914**	**2,693,170**	**2,865,279**	**172,109**	**6.4%**
NET OPERATING SUBSIDY	**(2,415,914)**	**(2,693,170)**	**(2,865,279)**	**172,109**	**6.4%**
OVERHEAD ALLOCATION	**2,517,820**	**2,693,170**	**2,865,279**	**172,109**	**6.4%**
ADJUSTED NET OPERATING SUBSIDY	**101,906**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**101,906**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
FRINGE BENEFITS BUDGET
FISCAL YEAR 2027
SECTION 5.09

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	(184,892)	-	-	-	-
FRINGE EXPENSES	7,848,485	8,411,745	9,344,121	932,376	11.1%
TOTAL PERSONNEL EXPENSES	**7,663,593**	**8,411,745**	**9,344,121**	**932,376**	**11.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	-	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**-**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**21,881**	**7,583**	**10,000**	**2,417**	**31.9%**
GENERAL AND ADMINISTRATIVE	**205**	**500**	**500**	**-**	**0.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**7,685,679**	**8,419,828**	**9,354,621**	**934,793**	**11.1%**
NET OPERATING SUBSIDY	**(7,685,679)**	**(8,419,828)**	**(9,354,621)**	**934,793**	**11.1%**
OVERHEAD ALLOCATION	**7,611,553**	**8,419,828**	**9,354,621**	**934,793**	**11.1%**
ADJUSTED NET OPERATING SUBSIDY	**(74,126)**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**(74,126)**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
GENERAL EXPENSES BUDGET
FISCAL YEAR 2027
SECTION 5.10

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	1,392	1,500	1,700	200	13.3%
FRINGE EXPENSES	(621,221)	(715,000)	(751,600)	(36,600)	5.1%
TOTAL PERSONNEL EXPENSES	**(619,829)**	**(713,500)**	**(749,900)**	**(36,400)**	**5.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	209,316	181,400	131,400	(50,000)	-27.6%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	1,357,596	1,607,815	1,068,008	(539,807)	-33.6%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**1,566,912**	**1,789,215**	**1,199,408**	**(589,807)**	**-33.0%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	11,832	3,768	379	(3,389)	-89.9%
TOTAL MATERIALS AND SUPPLIES	**11,832**	**3,768**	**379**	**(3,389)**	**-89.9%**
GAS/DIESEL/PROPANE	4,775	5,000	5,000	-	0.0%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	947,417	900,000	905,385	5,385	0.6%
TOTAL ENERGY	**952,192**	**905,000**	**910,385**	**5,385**	**0.6%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**2,267,765**	**2,358,948**	**2,358,948**	**-**	**0.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**458,458**	**632,120**	**663,726**	**31,606**	**5.0%**
TOTAL OPERATING EXPENSES	**4,637,331**	**4,975,551**	**4,382,946**	**(592,605)**	**-11.9%**
NET OPERATING SUBSIDY	**(4,637,331)**	**(4,975,551)**	**(4,382,946)**	**(592,605)**	**-11.9%**
OVERHEAD ALLOCATION	**4,647,648**	**4,975,551**	**4,382,946**	**(592,605)**	**-11.9%**
ADJUSTED NET OPERATING SUBSIDY	**10,317**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**10,317**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
HUMAN RESOURCES BUDGET
FISCAL YEAR 2027
SECTION 5.11

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	1,695,277	1,750,500	1,815,370	64,870	3.7%
FRINGE EXPENSES	310,102	290,000	328,739	38,739	13.4%
TOTAL PERSONNEL EXPENSES	**2,005,379**	**2,040,500**	**2,144,109**	**103,609**	**5.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	1,126,281	1,001,793	1,098,411	96,618	9.6%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**1,126,281**	**1,001,793**	**1,098,411**	**96,618**	**9.6%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	2,265	2,380	2,380	-	0.0%
TOTAL MATERIALS AND SUPPLIES	**2,265**	**2,380**	**2,380**	**-**	**0.0%**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**57,417**	**51,363**	**53,210**	**1,847**	**3.6%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**3,191,342**	**3,096,036**	**3,298,110**	**202,074**	**6.5%**
NET OPERATING SUBSIDY	**(3,191,342)**	**(3,096,036)**	**(3,298,110)**	**202,074**	**6.5%**
OVERHEAD ALLOCATION	**3,201,239**	**3,096,036**	**3,298,110**	**202,074**	**6.5%**
ADJUSTED NET OPERATING SUBSIDY	**9,897**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**9,897**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
INFORMATION TECHNOLOGY BUDGET
FISCAL YEAR 2027
SECTION 5.12

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	3,303,276	3,477,277	3,619,103	141,826	4.1%
FRINGE EXPENSES	483,566	493,068	517,805	24,737	5.0%
TOTAL PERSONNEL EXPENSES	**3,786,842**	**3,970,345**	**4,136,908**	**166,563**	**4.2%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	7,367,420	9,297,012	12,431,133	3,134,121	33.7%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**7,367,420**	**9,297,012**	**12,431,133**	**3,134,121**	**33.7%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	44,000	10,000	(34,000)	-77.3%
TOTAL MATERIALS AND SUPPLIES	**-**	**44,000**	**10,000**	**(34,000)**	**-77.3%**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	1,330	1,500	1,500	-	0.0%
TOTAL ENERGY	**1,330**	**1,500**	**1,500**	**-**	**0.0%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**334,121**	**293,550**	**556,300**	**262,750**	**89.5%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**11,489,713**	**13,606,407**	**17,135,841**	**3,529,434**	**25.9%**
NET OPERATING SUBSIDY	**(11,489,713)**	**(13,606,407)**	**(17,135,841)**	**3,529,434**	**25.9%**
OVERHEAD ALLOCATION	**12,895,275**	**13,606,407**	**17,135,841**	**3,529,434**	**25.9%**
ADJUSTED NET OPERATING SUBSIDY	**1,405,562**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**1,405,562**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
LAND MANAGEMENT BUDGET
FISCAL YEAR 2027
SECTION 5.13

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	3,301,225	2,700,000	2,814,547	114,547	4.2%
TOTAL OPERATING REVENUES	**3,301,225**	**2,700,000**	**2,814,547**	**114,547**	**4.2%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**3,301,225**	**2,700,000**	**2,814,547**	**114,547**	**4.2%**
OPERATING EXPENSES					
LABOR EXPENSES	216,342	220,619	222,520	1,901	0.9%
FRINGE EXPENSES	28,975	32,704	34,113	1,409	4.3%
TOTAL PERSONNEL EXPENSES	**245,317**	**253,323**	**256,633**	**3,310**	**1.3%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	65,989	35,000	-	(35,000)	-100.0%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	699,909	681,051	589,500	(91,551)	-13.4%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**765,898**	**716,051**	**589,500**	**(126,551)**	**-17.7%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	30,861	26,000	35,360	9,360	36.0%
TOTAL ENERGY	**30,861**	**26,000**	**35,360**	**9,360**	**36.0%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**113,590**	**110,585**	**111,996**	**1,411**	**1.3%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**1,155,668**	**1,105,959**	**993,489**	**(112,470)**	**-10.2%**
NET OPERATING SUBSIDY	**2,145,557**	**1,594,041**	**1,821,058**	**(227,017)**	**14.2%**
OVERHEAD ALLOCATION	**(1,960,915)**	**(1,594,041)**	**(1,821,058)**	**(227,017)**	**14.2%**
ADJUSTED NET OPERATING SUBSIDY	**184,642**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**184,642**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
LEGAL BUDGET
FISCAL YEAR 2027
SECTION 5.14

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	581,401	568,000	541,918	(26,082)	-4.6%
FRINGE EXPENSES	74,703	95,544	74,594	(20,950)	-21.9%
TOTAL PERSONNEL EXPENSES	**656,104**	**663,544**	**616,512**	**(47,032)**	**-7.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	864,801	752,400	725,400	(27,000)	-3.6%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**864,801**	**752,400**	**725,400**	**(27,000)**	**-3.6%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**126,400**	**70,934**	**67,000**	**(3,934)**	**-5.5%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**1,647,305**	**1,486,878**	**1,408,912**	**(77,966)**	**-5.2%**
NET OPERATING SUBSIDY	**(1,647,305)**	**(1,486,878)**	**(1,408,912)**	**(77,966)**	**-5.2%**
OVERHEAD ALLOCATION	**1,533,893**	**1,486,878**	**1,408,912**	**(77,966)**	**-5.2%**
ADJUSTED NET OPERATING SUBSIDY	**(113,412)**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**(113,412)**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
MARKETING BUDGET
FISCAL YEAR 2027
SECTION 5.15

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	868,661	878,000	899,284	21,284	2.4%
FRINGE EXPENSES	135,911	142,000	143,529	1,529	1.1%
TOTAL PERSONNEL EXPENSES	**1,004,572**	**1,020,000**	**1,042,813**	**22,813**	**2.2%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	1,202,071	1,129,695	997,679	(132,016)	-11.7%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**1,202,071**	**1,129,695**	**997,679**	**(132,016)**	**-11.7%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	98,776	11,700	488,700	477,000	4076.9%
TOTAL MATERIALS AND SUPPLIES	**98,776**	**11,700**	**488,700**	**477,000**	**4076.9%**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**225,197**	**206,400**	**204,000**	**(2,400)**	**-1.2%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**2,530,615**	**2,367,795**	**2,733,192**	**365,397**	**15.4%**
NET OPERATING SUBSIDY	**(2,530,615)**	**(2,367,795)**	**(2,733,192)**	**365,397**	**15.4%**
OVERHEAD ALLOCATION	**2,413,658**	**2,367,795**	**2,733,192**	**365,397**	**15.4%**
ADJUSTED NET OPERATING SUBSIDY	**(116,957)**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**(116,957)**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
PLANNING BUDGET
FISCAL YEAR 2027
SECTION 5.16

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	834,695	871,755	908,332	36,577	4.2%
FRINGE EXPENSES	171,550	148,805	154,626	5,821	3.9%
TOTAL PERSONNEL EXPENSES	**1,006,245**	**1,020,560**	**1,062,958**	**42,398**	**4.2%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	25,779	501,000	524,000	23,000	4.6%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**25,779**	**501,000**	**524,000**	**23,000**	**4.6%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	(69)	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**(69)**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**22,292**	**5,000**	**12,000**	**7,000**	**140.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**1,054,247**	**1,526,560**	**1,598,958**	**72,398**	**4.7%**
NET OPERATING SUBSIDY	**(1,054,247)**	**(1,526,560)**	**(1,598,958)**	**72,398**	**4.7%**
OVERHEAD ALLOCATION	**1,068,568**	**1,526,560**	**1,598,958**	**72,398**	**4.7%**
ADJUSTED NET OPERATING SUBSIDY	**14,321**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**14,321**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
PURCHASING BUDGET
FISCAL YEAR 2027
SECTION 5.17

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	1,386,042	1,500,000	1,577,797	77,797	5.2%
FRINGE EXPENSES	220,647	222,000	252,624	30,624	13.8%
TOTAL PERSONNEL EXPENSES	**1,606,689**	**1,722,000**	**1,830,421**	**108,421**	**6.3%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	70,261	106,500	156,500	50,000	46.9%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**70,261**	**106,500**	**156,500**	**50,000**	**46.9%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**11,844**	**20,025**	**20,885**	**860**	**4.3%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**1,688,794**	**1,848,525**	**2,007,806**	**159,281**	**8.6%**
NET OPERATING SUBSIDY	**(1,688,794)**	**(1,848,525)**	**(2,007,806)**	**159,281**	**8.6%**
OVERHEAD ALLOCATION	**1,681,434**	**1,848,525**	**2,007,806**	**159,281**	**8.6%**
ADJUSTED NET OPERATING SUBSIDY	**(7,360)**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**(7,360)**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
REVENUE BUDGET
FISCAL YEAR 2027
SECTION 5.18

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	25,864,658	25,205,691	24,752,089	(453,602)	-1.8%
TOTAL OPERATING REVENUES	**25,864,658**	**25,205,691**	**24,752,089**	**(453,602)**	**-1.8%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	7,390,497	2,956,943	4,000,000	1,043,057	35.3%
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**7,390,497**	**2,956,943**	**4,000,000**	**1,043,057**	**35.3%**
TOTAL COMBINED REVENUES	**33,255,155**	**28,162,634**	**28,752,089**	**589,455**	**2.1%**
OPERATING EXPENSES					
LABOR EXPENSES	-	-	-	-	-
FRINGE EXPENSES	441,817	-	-	-	-
TOTAL PERSONNEL EXPENSES	**441,817**	**-**	**-**	**-**	**-**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	-	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**-**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**-**	**-**	**-**	**-**	**-**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**441,817**	**-**	**-**	**-**	**-**
NET OPERATING SUBSIDY	**25,422,841**	**25,205,691**	**24,752,089**	**453,602**	**-1.8%**
OVERHEAD ALLOCATION	**(32,723,776)**	**(28,162,634)**	**(28,752,089)**	**(589,455)**	**2.1%**
ADJUSTED NET OPERATING SUBSIDY	**(7,300,935)**	**(2,956,943)**	**(4,000,000)**	**1,043,057**	**35.3%**
TOTAL REVENUES LESS TOTAL EXPENSES	**89,562**	**0**	**-**	**0**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
RISK BUDGET
FISCAL YEAR 2027
SECTION 5.19

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	358,962	363,000	363,004	4	0.0%
FRINGE EXPENSES	67,433	64,011	60,781	(3,230)	-5.0%
TOTAL PERSONNEL EXPENSES	**426,395**	**427,011**	**423,785**	**(3,226)**	**-0.8%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	15,667	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**15,667**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**763,018**	**925,523**	**1,028,086**	**102,563**	**11.1%**
GENERAL AND ADMINISTRATIVE	**329**	**2,116**	**400**	**(1,716)**	**-81.1%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**1,205,409**	**1,354,650**	**1,452,271**	**97,621**	**7.2%**
NET OPERATING SUBSIDY	**(1,205,409)**	**(1,354,650)**	**(1,452,271)**	**97,621**	**7.2%**
OVERHEAD ALLOCATION	**1,334,984**	**1,354,650**	**1,452,271**	**97,621**	**7.2%**
ADJUSTED NET OPERATING SUBSIDY	**129,575**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**129,575**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
SECURITY BUDGET
FISCAL YEAR 2027
SECTION 5.20

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	6,985,601	7,415,000	8,041,355	626,355	8.4%
FRINGE EXPENSES	815,931	820,102	913,641	93,539	11.4%
TOTAL PERSONNEL EXPENSES	**7,801,531**	**8,235,102**	**8,954,996**	**719,894**	**8.7%**
SECURITY EXPENSES	12,895,232	13,959,500	14,892,176	932,676	6.7%
REPAIR/MAINTENANCE SERVICES	76,381	103,500	104,500	1,000	1.0%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	720,639	420,636	433,736	13,100	3.1%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**13,692,251**	**14,483,636**	**15,430,412**	**946,776**	**6.5%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	7,505	11,900	11,900	-	0.0%
TOTAL MATERIALS AND SUPPLIES	**7,505**	**11,900**	**11,900**	**-**	**0.0%**
GAS/DIESEL/PROPANE	226,387	225,000	260,000	35,000	15.6%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	1,999	2,000	2,000	-	0.0%
TOTAL ENERGY	**228,386**	**227,000**	**262,000**	**35,000**	**15.4%**
RISK MANAGEMENT	**79,325**	**100,000**	**100,000**	**-**	**0.0%**
GENERAL AND ADMINISTRATIVE	**303,166**	**68,800**	**68,800**	**-**	**0.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**22,112,164**	**23,126,438**	**24,828,108**	**1,701,670**	**7.4%**
NET OPERATING SUBSIDY	**(22,112,164)**	**(23,126,438)**	**(24,828,108)**	**1,701,670**	**7.4%**
OVERHEAD ALLOCATION	**23,050,045**	**23,126,438**	**24,828,108**	**1,701,670**	**7.4%**
ADJUSTED NET OPERATING SUBSIDY	**937,881**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**937,881**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STORES BUDGET
FISCAL YEAR 2027
SECTION 5.21

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	1,315,522	1,366,930	1,440,708	73,778	5.4%
FRINGE EXPENSES	186,695	187,288	196,686	9,398	5.0%
TOTAL PERSONNEL EXPENSES	**1,502,217**	**1,554,218**	**1,637,394**	**83,176**	**5.4%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	162,038	177,958	191,000	13,042	7.3%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**162,038**	**177,958**	**191,000**	**13,042**	**7.3%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	6,423	6,000	6,000	-	0.0%
TOTAL MATERIALS AND SUPPLIES	**6,423**	**6,000**	**6,000**	**-**	**0.0%**
GAS/DIESEL/PROPANE	564	600	600	-	0.0%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**564**	**600**	**600**	**-**	**0.0%**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**9,814**	**18,000**	**9,000**	**(9,000)**	**-50.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**1,681,056**	**1,756,776**	**1,843,994**	**87,218**	**5.0%**
NET OPERATING SUBSIDY	**(1,681,056)**	**(1,756,776)**	**(1,843,994)**	**87,218**	**5.0%**
OVERHEAD ALLOCATION	**1,722,571**	**1,756,776**	**1,843,994**	**87,218**	**5.0%**
ADJUSTED NET OPERATING SUBSIDY	**41,515**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**41,515**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
TELEPHONE INFORMATION SERVICES BUDGET
FISCAL YEAR 2027
SECTION 5.22

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	-	-	-	-	-
TOTAL OPERATING REVENUES	**-**	**-**	**-**	**-**	**-**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**-**	**-**	**-**	**-**	**-**
OPERATING EXPENSES					
LABOR EXPENSES	682,346	712,000	738,882	26,882	3.8%
FRINGE EXPENSES	103,995	109,881	114,456	4,575	4.2%
TOTAL PERSONNEL EXPENSES	**786,341**	**821,881**	**853,338**	**31,457**	**3.8%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	-	-	-	-	-
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**-**	**-**	**-**	**-**	**-**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**2,607**	**2,000**	**2,000**	**-**	**0.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**788,948**	**823,881**	**855,338**	**31,457**	**3.8%**
NET OPERATING SUBSIDY	**(788,948)**	**(823,881)**	**(855,338)**	**31,457**	**3.8%**
OVERHEAD ALLOCATION	**852,800**	**823,881**	**855,338**	**31,457**	**3.8%**
ADJUSTED NET OPERATING SUBSIDY	**63,852**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**63,852**	**-**	**-**	**-**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
TRANSIT STORE BUDGET
FISCAL YEAR 2027
SECTION 5.23

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	5,019	5,000	5,000	-	0.0%
TOTAL OPERATING REVENUES	**5,019**	**5,000**	**5,000**	**-**	**0.0%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	-	-	-	-	-
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	-	-	-	-	-
TOTAL NON OPERATING REVENUE	**-**	**-**	**-**	**-**	**-**
TOTAL COMBINED REVENUES	**5,019**	**5,000**	**5,000**	**-**	**0.0%**
OPERATING EXPENSES					
LABOR EXPENSES	409,052	413,050	429,305	16,255	3.9%
FRINGE EXPENSES	70,538	78,468	76,452	(2,016)	-2.6%
TOTAL PERSONNEL EXPENSES	**479,591**	**491,518**	**505,757**	**14,239**	**2.9%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	3,344	3,800	3,800	-	0.0%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**3,344**	**3,800**	**3,800**	**-**	**0.0%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**-**	**-**	**-**	**-**	**-**
GENERAL AND ADMINISTRATIVE	**4,633**	**5,500**	**5,500**	**-**	**0.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**487,568**	**500,818**	**515,057**	**14,239**	**2.8%**
NET OPERATING SUBSIDY	**(482,549)**	**(495,818)**	**(510,057)**	**14,239**	**2.9%**
OVERHEAD ALLOCATION	**485,487**	**495,818**	**510,057**	**14,239**	**2.9%**
ADJUSTED NET OPERATING SUBSIDY	**2,938**	**-**	**-**	**-**	**-**
TOTAL REVENUES LESS TOTAL EXPENSES	**2,938**	**-**	**-**	**-**	**0.0%**

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
OTHER ACTIVITIES BUDGET SUMMARY
FISCAL YEAR 2027
SECTION 6.01

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	1,106,302	1,154,345	1,227,768	73,423	6.4%
TOTAL OPERATING REVENUES	**1,106,302**	**1,154,345**	**1,227,768**	**73,423**	**6.4%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	(181,279)	373,673	(82,598)	(456,271)	-122.1%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	(181,279)	373,673	(82,598)	(456,271)	-122.1%
TOTAL NON OPERATING REVENUE	**(181,279)**	**373,673**	**(82,598)**	**(456,271)**	**-122.1%**
TOTAL COMBINED REVENUES	**925,024**	**1,528,018**	**1,145,170**	**(382,848)**	**-25.1%**
OPERATING EXPENSES					
LABOR EXPENSES	417,916	460,000	493,465	33,465	7.3%
FRINGE EXPENSES	228,876	244,550	278,854	34,304	14.0%
TOTAL PERSONNEL EXPENSES	**646,792**	**704,550**	**772,319**	**67,769**	**9.6%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	3,498	7,000	7,000	-	0.0%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	105,547	540,000	102,000	(438,000)	-81.1%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**109,045**	**547,000**	**109,000**	**(438,000)**	**-80.1%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	2,382	500	500	-	0.0%
TOTAL MATERIALS AND SUPPLIES	**2,382**	**500**	**500**	**-**	**0.0%**
GAS/DIESEL/PROPANE	4,399	7,000	7,000	-	0.0%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**4,399**	**7,000**	**7,000**	**-**	**0.0%**
RISK MANAGEMENT	**75,915**	**142,667**	**116,774**	**(25,893)**	**-18.1%**
GENERAL AND ADMINISTRATIVE	**63,911**	**63,664**	**57,264**	**(6,400)**	**-10.1%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**24,608**	**28,000**	**28,857**	**857**	**3.1%**
TOTAL OPERATING EXPENSES	**927,053**	**1,493,381**	**1,091,714**	**(401,667)**	**-26.9%**
NET OPERATING SUBSIDY	**179,249**	**(339,036)**	**136,054**	**(475,090)**	**-140.1%**
OVERHEAD ALLOCATION	**733**	**(34,637)**	**(53,456)**	**(18,819)**	**54.3%**
ADJUSTED NET OPERATING SUBSIDY	**179,983**	**(373,673)**	**82,598**	**(456,271)**	**-122.1%**
TOTAL REVENUES LESS TOTAL EXPENSES	**(1,296)**	**0**	**0**	**(0)**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
FOR-HIRE VEHICLE (FHV) ADMINISTRATION BUDGET
FISCAL YEAR 2027
SECTION 6.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	821,253	827,345	861,425	34,080	4.1%
TOTAL OPERATING REVENUES	**821,253**	**827,345**	**861,425**	**34,080**	**4.1%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	24,369	254,806	116,321	(138,485)	-54.3%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	24,369	254,806	116,321	(138,485)	-54.3%
TOTAL NON OPERATING REVENUE	**24,369**	**254,806**	**116,321**	**(138,485)**	**-54.3%**
TOTAL COMBINED REVENUES	**845,622**	**1,082,151**	**977,746**	**(104,405)**	**-9.6%**
OPERATING EXPENSES					
LABOR EXPENSES	417,916	460,000	493,465	33,465	7.3%
FRINGE EXPENSES	226,591	242,150	276,504	34,354	14.2%
TOTAL PERSONNEL EXPENSES	**644,507**	**702,150**	**769,969**	**67,819**	**9.7%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	3,498	7,000	7,000	-	0.0%
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	97,007	223,000	67,000	(156,000)	-70.0%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**100,506**	**230,000**	**74,000**	**(156,000)**	**-67.8%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	2,382	500	500	-	0.0%
TOTAL MATERIALS AND SUPPLIES	**2,382**	**500**	**500**	**-**	**0.0%**
GAS/DIESEL/PROPANE	4,399	7,000	7,000	-	0.0%
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**4,399**	**7,000**	**7,000**	**-**	**0.0%**
RISK MANAGEMENT	**29,143**	**41,200**	**11,700**	**(29,500)**	**-71.6%**
GENERAL AND ADMINISTRATIVE	**40,810**	**38,664**	**32,264**	**(6,400)**	**-16.6%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**24,608**	**28,000**	**28,857**	**857**	**3.1%**
TOTAL OPERATING EXPENSES	**846,355**	**1,047,514**	**924,290**	**(123,224)**	**-11.8%**
NET OPERATING SUBSIDY	**(25,102)**	**(220,169)**	**(62,865)**	**(157,304)**	**-71.4%**
OVERHEAD ALLOCATION	**733**	**(34,637)**	**(53,456)**	**(18,819)**	**54.3%**
ADJUSTED NET OPERATING SUBSIDY	**(24,369)**	**(254,806)**	**(116,321)**	**(138,485)**	**-54.3%**
TOTAL REVENUES LESS TOTAL EXPENSES	**(0)**	**0**	**-**	**0**	**0.0%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
SAN DIEGO AND ARIZONA EASTERN RAILROAD BUDGET
FISCAL YEAR 2027
SECTION 6.03

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	$ CHANGE BUDGET/ AMENDED	% CHANGE BUDGET/ AMENDED
OPERATING REVENUE					
PASSENGER REVENUE	-	-	-	-	-
OTHER OPERATING REVENUE	285,049	327,000	366,343	39,343	12.0%
TOTAL OPERATING REVENUES	**285,049**	**327,000**	**366,343**	**39,343**	**12.0%**
NON OPERATING REVENUE					
TOTAL SUBSIDY REVENUE	-	-	-	-	-
OTHER NON OPERATING REVENUE					
RESERVE REVENUE	(205,648)	118,867	(198,919)	(317,786)	-267.3%
OTHER INCOME	-	-	-	-	-
TOTAL OTHER NON OPERATING REVENUE	(205,648)	118,867	(198,919)	(317,786)	-267.3%
TOTAL NON OPERATING REVENUE	**(205,648)**	**118,867**	**(198,919)**	**(317,786)**	**-267.3%**
TOTAL COMBINED REVENUES	**79,402**	**445,867**	**167,424**	**(278,443)**	**-62.4%**
OPERATING EXPENSES					
LABOR EXPENSES	-	-	-	-	-
FRINGE EXPENSES	2,285	2,400	2,350	(50)	-2.1%
TOTAL PERSONNEL EXPENSES	**2,285**	**2,400**	**2,350**	**(50)**	**-2.1%**
SECURITY EXPENSES	-	-	-	-	-
REPAIR/MAINTENANCE SERVICES	-	-	-	-	-
ENGINE AND TRANSMISSION REBUILD	-	-	-	-	-
OTHER OUTSIDE SERVICES	8,540	317,000	35,000	(282,000)	-89.0%
PURCHASED TRANSPORTATION	-	-	-	-	-
TOTAL OUTSIDE SERVICES	**8,540**	**317,000**	**35,000**	**(282,000)**	**-89.0%**
LUBRICANTS	-	-	-	-	-
TIRES	-	-	-	-	-
OTHER MATERIALS AND SUPPLIES	-	-	-	-	-
TOTAL MATERIALS AND SUPPLIES	**-**	**-**	**-**	**-**	**-**
GAS/DIESEL/PROPANE	-	-	-	-	-
CNG	-	-	-	-	-
TRACTION POWER	-	-	-	-	-
UTILITIES	-	-	-	-	-
TOTAL ENERGY	**-**	**-**	**-**	**-**	**-**
RISK MANAGEMENT	**46,772**	**101,467**	**105,074**	**3,607**	**3.6%**
GENERAL AND ADMINISTRATIVE	**23,101**	**25,000**	**25,000**	**-**	**0.0%**
DEBT SERVICE	**-**	**-**	**-**	**-**	**-**
VEHICLE / FACILITY LEASE	**-**	**-**	**-**	**-**	**-**
TOTAL OPERATING EXPENSES	**80,698**	**445,867**	**167,424**	**(278,443)**	**-62.4%**
NET OPERATING SUBSIDY	**204,352**	**(118,867)**	**198,919**	**(317,786)**	**-267.3%**
OVERHEAD ALLOCATION	**-**	**-**	**-**	**-**	**-**
ADJUSTED NET OPERATING SUBSIDY	**204,352**	**(118,867)**	**198,919**	**(317,786)**	**-267.3%**
TOTAL REVENUES LESS TOTAL EXPENSES	**(1,296)**	**(0)**	**-**	**(0)**	**0.0%**

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Summary of Debt-Service Activities
Proposed Budget Fiscal Year 2027
Section 7.01

Overview

This section reviews the debt service activities of MTS's operating budget. MTS has no outstanding debt obligations and therefore no debt service payments scheduled for FY27.

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
Summary of Significant Capital Activities
Proposed Budget Fiscal Year 2027
Section 8.01

Development of the MTS Fiscal Year 2027 Capital Improvement Program (CIP)

The creation of the annual CIP and operating budgets involve a multitude of decisions that impact the agency's assets and the ability to keep these assets in a State of Good Repair (SGR). This requires a delicate balance between funding capital and operations in order to effectively, efficiently, and safely provide transit services for the region. In accordance with Board policy 65 - Transit Asset Management Policy, MTS maintains both a Transit Asset Management plan and a 20-year CIP forecast in order to facilitate these decision-making processes. On a yearly basis, the CIP is constructed under this framework, subject to the funding that is available in the current year.

The CIP process began in September 2025 with the "call for projects". Each MTS agency, MTS Administration, San Diego Transit Corporation, San Diego Trolley, Inc., and SANDAG, submitted its capital project requests in priority order. The lists were consolidated for review by Finance staff. A meeting of members of the CIP Budget Development Committee was held to review and to develop a CIP recommendation for FY27 ensuring that operationally critical projects were funded. The Chief Executive Officer (CEO) approved the prioritization of those capital requests. The FY27 MTS CIP was approved by the MTS Board of Directors on March 12, 2026.

The approved budget included funding $72.0 million for preventative maintenance, $6.4 million for ADA Operations, and $301,000 in SANDAG planning studies. Available CIP funding was also reduced by $50.0 million which will be utilized in the Operating Budget per Board direction. The remaining projects compete for the balance of available funding after the preventive maintenance has been taken into consideration.

CIP Revenues

For FY27, there is $109.4 million in federal, state, and local funding sources available for the CIP, which are detailed in Section 8.02. Recurring revenue sources total $75.3 million in the FY27 CIP in the form of federal formula revenues, TDA, STA, and LCTOP. Descriptions of these recurring revenue sources are included in Section 3.01.

Non-recurring funding of $34.1 million makes up the balance of the CIP revenues. Non-recurring funding includes $6.3 million in TIRCP competitive grant awards, $5.6 million in Senate Bill 125 ZETCP funding, $4.1 million in CNG Alternative Fuels Credit rebate revenue, $14.7 million in 5339(b) Buses and Bus Facilities Revenue, $741,000 in Transformative Climate Communities (TCC) funding, $1.6 million in transferred revenue from completed projects, and $1.0 million in other miscellaneous revenues.

Section 8.04 details the cumulative funding by revenue source for the approved projects. Final decisions on the funding sources were made during the FY27 CIP implementation process in order to maximize the availability and flexibility of funding.

CIP Project List

The capital project list in Section 8.03 represents the five-year, unconstrained need for the MTS operators. After the most critical projects for FY27 were funded, the remaining projects were deferred; however, it is recognized that the continued deferral of some projects could have negative

impacts on system infrastructure in future years. The FY27 funding level represents 56.7 percent of the total project needs after funding preventive maintenance and the one-time shift of $50.0 million from capital to operations.

Section 8.05 lists the descriptions of MTS administered projects that were determined to be the most critical to fund for the upcoming fiscal year. Of the $109.4 million available funding for capital projects, $40.2 million (or 37 percent) has been dedicated to Revenue Vehicle replacement for the ongoing upkeep of the MTS fleet of service vehicles; $14.5 million (or 13 percent) has been dedicated to Facility & Construction projects; $27.6 million (or 25 percent) has been dedicated to Rail Infrastructure projects; $4.7 million (or 4 percent) has been dedicated to Other Equipment & Installations; $5.6 million (or 5 percent) has been dedicated to meeting requirement of the Innovative Clean Transit rule (zero emission buses and infrastructure); and another $16.8 million (or 15 percent) has been dedicated to other initiatives projects.

Five-Year Capital Program Projections

Section 8.06 summarizes a high-level look at the five-year capital program. The federal 5307 and 5337 funding levels are projected by SANDAG to be flat through FY31 resulting in a decrease in recurring revenue projections year by year. Added to that is $59.5 million in already identified non-recurring revenues, resulting in a total revenue projection for CIP of $441.8 million. Total project needs over the five-year term are projected to be $1.2 billion, which exceeds the projected revenue available for CIP. Projected deficits from FY27 to FY31 total $796.3 million. The ratio of total funding to total capital needs over the five-year term is projected at 35.7%.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
APPROVED CAPITAL BUDGET - REVENUES (in 000's)
FISCAL YEAR 2027
SECTION 8.02

Funding Description		Total
Federal FFY26 - 5307 Funding Estimate	$	64,854
Federal FFY26 - 5337 Funding Estimate		47,433
Federal FFY26 - 5339 Funding Estimate		4,496
California Transportation Development Act (TDA)		54,142
California State Transit Assistance (STA)		18,800
California State of Good Repair (SGR)		5,777
California Cap and Trade (LCTOP)		-
California Cap and Trade (TIRCP)		6,315
California Cap and Trade (LCTOP)		8,527
California SB125 Formula (ZETCP)		-
California SB125 Formula (TIRCP)		-
5339 (b) Buses and Bus Facilities		14,680
Other Funds		13,059
Total Available Funding	**$**	**238,083**
Preventive Maintenance - Federal 5307	$	(33,990)
Preventive Maintenance - Federal 5337		(38,010)
ADA Operation - Federal 5307		(6,400)
SANDAG Planning Study - Local Match		(301)
Total Preventative Maintenance/SANDAG Planning	**$**	**(78,700)**
Funding Shift to Operations (TDA)	$	(50,000)
Total Other Adjustments	**$**	**(50,000)**
Available Funding for Capital Program	**$**	**109,383**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
APPROVED CAPITAL BUDGET - PROJECTS (in 000's)
FISCAL YEAR 2027
SECTION 8.03

PROJECT SUBMITTALS:

Division	Project Name	Funded Thru FY 2026	FY27 Request	FY 2027 Funded	FY 2028	FY 2029	FY 2030	FY 2031	BUDGET FY27 - FY31	TOTAL BUDGET
SDTC	FY27 Bus Procurement	-	40,194,550	40,194,550	55,000,000	55,000,000	65,000,000	75,000,000	290,194,550	290,194,550
SDTC	Kearny Mesa Division BEB Charging Infrastructure	22,424,000	3,917,000	3,917,000	-	-	-	-	3,917,000	26,341,000
SDTC	Imperial Avenue Division BEB Charging Infrastructure	22,125,000	1,728,000	1,728,000	-	-	-	-	1,728,000	23,853,000
SDTC	Iris Rapid Bus Stop - Construction	7,375,523	732,000	732,000	-	-	-	-	732,000	8,107,523
SDTC	Grantville Transit Center Bus Bay Improvements	-	380,000	380,000	-	-	-	-	380,000	380,000
SDTC	Imperial Ave & Kearny Mesa Division Service Fluid Distribution	-	-	-					-	-
SDTC	New Transit Facility (CTAC)	-	50,000,000	-	50,000,000	50,000,000	50,000,000	40,000,000	190,000,000	190,000,000
SDTC	ZEB Infrastructure All Divisions	-	16,783,000	-	72,748,000	37,051,000	38,000,000	40,474,000	188,273,000	188,273,000
SDTC	Copley Park Division New Admin Building	-	6,768,000	-					-	-
SDTC	Southbay & East County Bus Division Fall Protection	-	760,000	-					-	-
SDTC	Kearny Mesa Division Elevator Rehabilitation	-	600,000	-					-	-
SDTC	Imperial Ave & Kearny Division Service Lane Building Lighting Replacement	-	105,000	-					-	-
SDTC	Kearny Mesa Division Service Lane & Brake Pit Roof Replacement	-	270,000	-					-	-
SDTC	Service Trucks Replacement	-	-	-	-	-	-	425,000	425,000	425,000
SDTC	RTMS & Hastus Upgrades	-	-	-	2,850,000	-	300,000	-	3,150,000	3,150,000
SDTC	Kearny Mesa Division Upgrades	-	-	-	900,000	-	-	-	900,000	900,000
SDTC	Imperial Ave Division Upgrades	-	-	-	8,500,000	5,450,000	-	125,000	14,075,000	14,075,000
SDTC	Southbay Bus Division Upgrades	-	-	-	-	-	-	150,000	150,000	150,000
SDTC	Copley Park Division Upgrades	-	-	-	850,000	-	-	-	850,000	850,000
SDTC	East County Division Upgrades	-	-	-	-	-	-	100,000	100,000	100,000
SDTI	Cleaning Equipment Replacement	-	100,000	100,000	200,000	100,000	200,000	100,000	700,000	700,000
SDTI	Elevator Modernization - Grossmont	4,000,000	1,500,000	1,500,000	-	-	-	-	1,500,000	5,500,000
SDTI	Elevator Replacement - Fashion Valley	-	2,850,000	2,850,000	-	-	-	-	2,850,000	2,850,000
SDTI	Fence Improvements	2,024,960	950,000	950,000	350,000	350,000	350,000	350,000	2,350,000	4,374,960
SDTI	HVAC Replacement	-	200,000	200,000	100,000	100,000	100,000	100,000	600,000	600,000
SDTI	SDSU Escalator Replacement	-	3,500,000	3,500,000	-	-	-	-	3,500,000	3,500,000
SDTI	A Building Compressed Air Replacement	-	-	-	-	-	-	-	-	-
SDTI	C Building LRV Shop 7.5 Ton Crane Replacement	-	450,000	450,000	250,000	-	-	-	700,000	700,000
SDTI	C Building Wheelscan Update / Modernization	-	-	-	-	-	-	-	-	-
SDTI	Gator Utility Vehicle Replacement	-	-	-	-	-	-	-	-	-
SDTI	Rerail Equipment Replacement	-	200,000	200,000	300,000	-	-	-	500,000	500,000
SDTI	43rd Substation AC Switchgear	1,175,000	430,000	430,000	-	-	-	-	430,000	1,605,000
SDTI	Downtown Parallel Feeder Cable - Phase 1&2	2,310,000	1,000,000	1,000,000	-	8,000,000	16,000,000	11,000,000	36,000,000	38,310,000
SDTI	OL Improvement Project Phase 2	45,000,000	20,996,311	17,786,311	21,000,000	-	-	-	38,786,311	83,786,311
SDTI	Orange and Copper Line Lighting Upgrades	1,378,000	1,626,000	1,626,000	-	-	-	-	1,626,000	3,004,000
SDTI	SDSU Underground Station HVAC Replacement	500,000	2,000,000	2,000,000	-	2,500,000	1,100,000	-	5,600,000	6,100,000
SDTI	Station Communication Cabinets AC Replacement	-	500,000	500,000	2,000,000	600,000	2,000,000	600,000	5,700,000	5,700,000
SDTI	Substation Replacement	22,359,840	1,684,124	1,684,124	7,600,000	2,500,000	15,500,000	23,500,000	50,784,124	73,143,964
SDTI	Beyer Blvd Track and Slope	9,142,000	150,000	150,000	-	-	-	-	150,000	9,292,000
SDTI	Drainage Improvements	800,000	750,000	750,000	8,350,000	4,500,000	1,000,000	-	14,600,000	15,400,000
SDTI	Special Trackwork Replacement	11,729,181	4,800,000	4,800,000	2,200,000	2,750,000	1,400,000	600,000	11,750,000	23,479,181
SDTI	Rio Vista Platform Construction/Station Trackway	-	4,000,000	-	-	-	-	-	-	-
SDTI	Bayside Quiet Zone Grade Crossing Upgrade	-	500,000	-	2,000,000	-	-	-	2,000,000	2,000,000
SDTI	Building A Roll up Door Replacement	-	-	-	350,000	350,000	-	-	700,000	700,000
SDTI	Building A Roof Replacement	-	-	-	1,200,000	-	-	-	1,200,000	1,200,000
SDTI	Building C Roof Replacement	-	-	-	2,000,000	-	-	-	2,000,000	2,000,000
SDTI	Paint Booth - Roof Replacement & Blowers	-	-	-	400,000	175,000	-	-	575,000	575,000
SDTI	Second Elevator at Stadium Station	-	-	-	2,500,000	-	-	-	2,500,000	2,500,000
SDTI	Stadium Station Platform				2,500,000				2,500,000	2,500,000
SDTI	Station Shelter Replacement	-	-	-	-	-	650,000	-	650,000	650,000
SDTI	Yard Tower Interior Upgrade	-	-	-	400,000	-	-	-	400,000	400,000
SDTI	Yard Tower Roof Replacement	-	-	-	1,200,000	-	-	-	1,200,000	1,200,000
SDTI	C Building Crane Upgrade & Expansion				5,000,000				5,000,000	5,000,000
SDTI	SD7 LRV Replacement	-	-	-	10,566,000	10,566,000	10,566,000	10,566,000	42,264,000	42,264,000

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
APPROVED CAPITAL BUDGET - PROJECTS (in 000's)
FISCAL YEAR 2027
SECTION 8.03

PROJECT SUBMITTALS:

Division	Project Name	Funded Thru FY 2026	FY27 Request	FY 2027 Funded	FY 2028	FY 2029	FY 2030	FY 2031	BUDGET FY27 - FY31	TOTAL BUDGET
SDTI	A-yard Catenary Replacement	-	-	-	1,000,000	1,000,000	2,000,000	-	4,000,000	4,000,000
SDTI	Blue Line-South CTC Upgrade	-	-	-	-	500,000	500,000	500,000	1,500,000	1,500,000
SDTI	Grade Crossing Warning System	-	-	-	-	300,000	2,300,000	2,300,000	4,900,000	4,900,000
SDTI	Overhead Catenary System (OCS)	-	-	-	-	750,000	5,000,000	5,000,000	10,750,000	10,750,000
SDTI	Sicas S7 System Wide Replacement	-	-	-	-	6,000,000	6,000,000	6,000,000	18,000,000	18,000,000
SDTI	Signal Replacement	-	-	-	1,000,000	-	-	-	1,000,000	1,000,000
SDTI	Station Lighting Upgrade	-	-	-	2,000,000	3,000,000	2,000,000	-	7,000,000	7,000,000
SDTI	Substation Siemens 1st Gen Monitoring Devices	-	-	-	2,000,000	-	-	-	2,000,000	2,000,000
SDTI	System Wide UPS and Batteries Replacement	-	-	-	-	200,000	-	-	200,000	200,000
SDTI	Yard Switch Automation	-	-	-	500,000	-	-	-	500,000	500,000
SDTI	Grade Crossing Replacement	-	-	-	6,337,000	1,948,000	5,677,000	9,591,000	23,553,000	23,553,000
SDTI	On-Track Equipment Replacement	-	-	-	-	-	650,000	-	650,000	650,000
SDTI	Station Trackway Replacement	-	-	-	1,500,000	-	-	-	1,500,000	1,500,000
SDTI	Street Trackage Pavement Replacement	-	-	-	3,000,000	1,500,000	6,000,000	6,000,000	16,500,000	16,500,000
MTS Admin	America Plaza Pedestrian Enhancements	6,506,586	350,000	350,000	-	-	-	-	350,000	6,856,586
MTS Admin	Beyer Blvd Pathway Beautification	2,139,000	1,110,000	1,110,000	-	-	-	-	1,110,000	3,249,000
MTS Admin	Imperial Avenue Transit Center - Construction	13,650,000	741,000	741,000	3,259,000	-	-	-	4,000,000	17,650,000
MTS Admin	Miscellaneous Capital	-	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000	5,000,000
MTS Admin	Bus Stop Shelters	1,350,000	840,000	840,000	1,200,000	1,300,000	1,300,000	-	4,640,000	5,990,000
MTS Admin	Transit Amenity Improvement	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000	6,000,000
MTS Admin	Paperless Shop for Bus/LRV Maintenance and Inventory	-	549,525	549,525	-	-	-	-	549,525	549,525
MTS Admin	VMS Upgrade Project Mid-Coast and BRT	-	1,684,930	1,684,930	2,352,226	696,800	-	-	4,733,956	4,733,956
MTS Admin	Listening Tour	-	-	-	2,000,000	-	-	-	2,000,000	2,000,000
MTS Admin	System Sign Upgrades	-	-	-	-	-	3,500,000	3,500,000	7,000,000	7,000,000
MTS Admin	Copier Replacement	-	-	-	125,000	125,000	125,000	125,000	500,000	500,000
MTS Admin	ADA Bus Stop Improvements	-	-	-	500,000	600,000	700,000	-	1,800,000	1,800,000
MTS Admin	El Cajon Transit Center Improvements	-	-	-	500,000	500,000	12,000,000	-	13,000,000	13,000,000
MTS Admin	Euclid Transit Center Redesign	-	-	-	500,000	500,000	1,000,000	1,000,000	3,000,000	3,000,000
MTS Admin	Dispatch Center Update/ Upgrade	-	-	-	-	-	-	250,000	250,000	250,000
MTS Admin	Transit Enforcement Office Expansion	-	-	-	200,000	2,000,000	2,000,000	2,000,000	6,200,000	6,200,000
MTS Admin	Bus Yard Wireless Network Equipment	-	-	-	98,000	98,000	100,000	100,000	396,000	396,000
MTS Admin	Fare system Refresh or Replace Analysis	-	-	-	-	763,000	-	-	763,000	763,000
MTS Admin	Genfare HW Lane Refresh South Bay and El Cajon Garages	-	-	-	-	-	650,000	-	650,000	650,000
MTS Admin	MTS Data Storage Replacement	-	-	-	300,000	540,000	170,000	155,000	1,165,000	1,165,000
MTS Admin	MTS Server Replacement	-	-	-	800,000	800,000	800,000	800,000	3,200,000	3,200,000
MTS Admin	Network Communication Equipment Replacement	-	-	-	683,000	683,000	700,000	700,000	2,766,000	2,766,000
MTS Admin	Regional Parking Solution	-	-	-	1,000,000	-	-	-	1,000,000	1,000,000
MTS Admin	Trolley Station Network Communication Equipment	-	-	-	662,000	662,000	700,000	700,000	2,724,000	2,724,000
MTS Admin	Kearny Mesa Transit Center	-	14,680,000	14,680,000	-	-	-	-	14,680,000	14,680,000
MTS Admin	San Ysidro Transit Center Planning & Design	-	-	-	15,000,000	15,000,000	-	-	30,000,000	30,000,000
MTS Admin	Southwestern Rapid	-	-	-	1,000,000	5,000,000	6,000,000	-	12,000,000	12,000,000
MTS Admin	MTS Fare Gate Study	-	500,000	-	-	-	-	-	-	-
	Totals	**$ 176,989,090**	**$ 192,879,440**	**$ 109,383,440**	**$ 310,830,226**	**$ 226,457,800**	**$ 264,038,000**	**$ 243,811,000**	**$ 1,154,520,466**	**$ 1,331,509,556**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
APPROVED CAPITAL BUDGET - CUMMULATIVE THROUGH FISCAL YEAR 2026 (in 000's)
FISCAL YEAR 2027
SECTION 8.04

			FUNDING SOURCES							
Project Name	**Funded thru FY26**	**FY27 Funded**	**5307**	**5337**	**5339**	**TDA**	**STA/SB1 SGR**	**LCTOP**	**TIRCP**	**Other**
FY27 Bus Procurement	$ -	$ 40,194,550	$ 20,584,435	$ -	$ 4,496,075	$ -	$ 6,587,032	$ 8,527,008	$ -	$ -
Kearny Mesa Division BEB Charging Infrastructure	22,424,000	3,917,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,917,000
Imperial Avenue Division BEB Charging Infrastructure	22,125,000	1,728,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,728,000
Iris Rapid Bus Stop - Construction	7,375,523	732,000	$ -	$ -	$ -	$ -	$ 732,000	$ -	$ -	$ -
Grantville Transit Center Bus Bay Improvements	-	380,000	$ -	$ -	$ -	$ -	$ 380,000	$ -	$ -	$ -
Cleaning Equipment Replacement	-	100,000	$ -	$ -	$ -	$ -	$ 100,000	$ -	$ -	$ -
Elevator Modernization - Grossmont	4,000,000	1,500,000	$ -	$ -	$ -	$ -	$ 1,500,000	$ -	$ -	$ -
Elevator Replacement - Fashion Valley	-	2,850,000	$ 2,280,000	$ -	$ -	$ -	$ 570,000	$ -	$ -	$ -
Fence Improvements	2,024,960	950,000	$ -	$ -	$ -	$ -	$ 950,000	$ -	$ -	$ -
HVAC Replacement	-	200,000	$ -	$ 139,087	$ -	$ -	$ 60,913	$ -	$ -	$ -
SDSU Escalator Replacement	-	3,500,000	$ -	$ 2,800,000	$ -	$ -	$ 700,000	$ -	$ -	$ -
C Building LRV Shop 7.5 Ton Crane Replacement	-	450,000	$ -	$ -	$ -	$ -	$ 450,000	$ -	$ -	$ -
Rerail Equipment Replacement	-	200,000	$ -	$ -	$ -	$ -	$ 200,000	$ -	$ -	$ -
43rd Substation AC Switchgear	1,175,000	430,000	$ -	$ -	$ -	$ -	$ 430,000	$ -	$ -	$ -
Downtown Parallel Feeder Cable - Phase 1&2	2,310,000	1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000	$ -	$ -	$ -
OL Improvement Project Phase 2	45,000,000	17,786,311	$ -	$ -	$ -	$ 3,841,578	$ 956,653	$ -	$ 6,315,000	$ 6,673,080
Orange and Copper Line Lighting Upgrades	1,378,000	1,626,000	$ -	$ -	$ -	$ -	$ 1,626,000	$ -	$ -	$ -
SDSU Underground Station HVAC Replacement	500,000	2,000,000	$ 1,600,000	$ -	$ -	$ -	$ 400,000	$ -	$ -	$ -
Station Communication Cabinets AC Replacement	-	500,000	$ -	$ -	$ -	$ -	$ 500,000	$ -	$ -	$ -
Substation Replacement	22,359,840	1,684,124	$ -	$ 1,684,124	$ -	$ -	$ -	$ -	$ -	$ -
Beyer Blvd Track and Slope	9,142,000	150,000	$ -	$ -	$ -	$ -	$ 150,000	$ -	$ -	$ -
Drainage Improvements	800,000	750,000	$ -	$ -	$ -	$ -	$ 750,000	$ -	$ -	$ -
Special Trackwork Replacement	11,729,181	4,800,000	$ -	$ 4,800,000	$ -	$ -	$ -	$ -	$ -	$ -
America Plaza Pedestrian Enhancements	6,506,586	350,000	$ -	$ -	$ -	$ -	$ 350,000	$ -	$ -	$ -
Beyer Blvd Pathway Beautification	2,139,000	1,110,000	$ -	$ -	$ -	$ -	$ 1,110,000	$ -	$ -	$ -
Transit Amenity Improvement	1,000,000	1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000	$ -	$ -	$ -
Imperial Avenue Transit Center - Construction	13,650,000	741,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 741,000
Miscellaneous Capital	-	1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000	$ -	$ -	$ -
Bus Stop Shelters	1,350,000	840,000	$ -	$ -	$ -	$ -	$ 840,000	$ -	$ -	$ -
Paperless Shop for Bus/LRV Maintenance and Inventory	-	549,525	$ -	$ -	$ -	$ -	$ 549,525	$ -	$ -	$ -
VMS Upgrade Project Mid-Coast and BRT	-	1,684,930	$ -	$ -	$ -	$ -	$ 1,684,930	$ -	$ -	$ -
Kearny Mesa Transit Center	-	14,680,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 14,680,000
Totals	**$ 176,989,090**	**$ 109,383,440**	**$ 24,464,435**	**$ 9,423,211**	**$ 4,496,075**	**$ 3,841,578**	**$ 24,577,053**	**$ 8,527,008**	**$ 6,315,000**	**$ 27,739,080**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CAPITAL BUDGET - INDIVIDUAL PROJECT DESCRIPTION FOR FISCAL YEAR 2027 (in 000's)
Section 8.05

The Capital Improvement Program includes improvements and replacement projects related to MTS, SDTC, and SDTI Capital Assets. The projects below are funded with Federal funds where indicated and are matched with the required amount of local funds. The projects listed are implemented by the project manager of the coinciding agency and monitored by MTS administration.

Form ID	Title	FY27 Budget	Federal	State/Local	Other
2625	Bus Ops - FY27 Bus Procurement FY27 Bus Procurement	40,195	25,081	810	14,304
2688	Bus Ops - Kearney Mesa Division BEB Charging Infrastructure Kearney Mesa Division BEB Charging Infrastructure	3,917	-	-	3,917
2691	Bus Ops - Imperial Avenue Division BEB Charging Infrastructure Imperial Avenue Division BEB Charging Infrastructure	1,728	-	-	1,728
2693	Bus Ops - Iris Rapid Bus Stop - Construction Iris Rapid Bus Stop - Construction	732	-	732	-
2692	Bus Ops - Grantville Transit Center Bus Bay Improvements Grantville Transit Center Bus Bay Improvements	380	-	380	-
2713	Rail Ops - Cleaning Equipment Replacement Cleaning Equipment Replacement	100	-	100	-
2711	Rail Ops - Elevator Modernization - Grossmont Elevator Modernization - Grossmont	1,500	-	1,500	-
2710	Rail Ops - Elevator Replacement - Fashion Valley Elevator Replacement - Fashion Valley	2,850	2,280	570	-
2714	Rail Ops - Fence Improvements Fence Improvements	950	-	950	-
2715	Rail Ops - HVAC Replacement HVAC Replacement	200	139	61	-
2712	Rail Ops - SDSU Escalator Replacement SDSU Escalator Replacement	3,500	2,800	700	-
2701	Rail Ops - C Building LRV Shop 7.5 Ton Crane Replacement C Building LRV Shop 7.5 Ton Crane Replacement	450	-	450	-
2705	Rail Ops - Rerail Equipment Replacement Rerail Equipment Replacement	200	-	200	-
2698	Rail Ops - 43rd Substation AC Switchgear Replacement 43rd Substation AC Switchgear Replacement	430	-	430	-
2663	Rail Ops - Downtown Parallel Feeder Cable - Phase 1&2 Downtown Parallel Feeder Cable - Phase 1&2	1,000	-	1,000	-
2658	Rail Ops - OL Improvement Project Phase 2 OL Improvement Project Phase 2	17,786	-	11,113	6,673
2686	Rail Ops - Orange and Copper Line Lighting Upgrades Orange and Copper Line Lighting Upgrades	1,626	-	1,626	-
2666	Rail Ops - SDSU Underground Station HVAC Replacement SDSU Underground Station HVAC Replacement	2,000	1,600	400	-
2672	Rail Ops - Station Communication Cabinets AC Replacement Station Communication Cabinets AC Replacement	500	-	500	-
2656	Rail Ops - Substation Replacement Substation Replacement	1,684	1,684	-	-
2626	Rail Ops - Beyer Blvd Track and Slope Improvements	150	-	150	-

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
CAPITAL BUDGET - INDIVIDUAL PROJECT DESCRIPTION FOR FISCAL YEAR 2027 (in 000's)
Section 8.05

The Capital Improvement Program includes improvements and replacement projects related to MTS, SDTC, and SDTI Capital Assets. The projects below are funded with Federal funds where indicated and are matched with the required amount of local funds. The projects listed are implemented by the project manager of the coinciding agency and monitored by MTS administration.

Form ID	Title	FY27 Budget	Federal	State/Local	Other
	Beyer Blvd Track and Slope Improvements				
2648	Rail Ops - Drainage Improvements	750	-	750	-
	Drainage Improvements				
2651	Rail Ops - Special Trackwork Replacement	4,800	4,800	-	-
	Special Trackwork Replacement				
2733	Admin - America Plaza Pedestrian Enhancements	350	-	350	-
	America Plaza Pedestrian Enhancements				
2724	Admin - Beyer Blvd Pathway Beautification	1,110	-	1,110	-
	Beyer Blvd Pathway Beautification				
2734	Admin - Imperial Avenue Transit Center - Construction	741	-	-	741
	Imperial Avenue Transit Center - Construction				
2728	Admin - Bus Stop Shelters Replacement	840	-	840	-
	Bus Stop Shelters Replacement				
2729	Admin - Transit Amenity Improvement	1,000	-	1,000	-
	Transit Amenity Improvement				
2673	Admin - Paperless Shop for Bus/LRV Maintenance and Inventory	550	-	550	-
	Paperless Shop for Bus/LRV Maintenance and Inventory				
2674	Admin - Variable Message System Upgrade for Mid-Coast and BRT Stations	1,685	-	1,685	-
	Variable Message System Upgrade for Mid-Coast and BRT Stations				
N/A	Miscellaneous Capital	1,000	-	1,000	-
	Miscellaneous Capital				
N/A	Kearny Mesa Transit Center	14,680	14,680	-	-
	Kearny Mesa Transit Center				
	Totals	**109,383**	**53,064**	**28,957**	**27,363**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
APPROVED CAPITAL BUDGET - FIVE YEAR PROJECTION (000's)
FISCAL YEARS 2027-2031
SECTION 8.06

	Proposed FY27	Projected FY28	Projected FY29	Projected FY30	Projected FY31	Total FY27 to FY31
Total Revenues						
Recurring Dedicated CIP Revenues	$ 204,030	$ 208,302	$ 209,768	$ 211,234	$ 212,698	$ 1,046,032
Other Non Recurring Revenues	34,054	6,124	19,371	-	-	59,549
Total Capital Revenues	$ 238,084	$ 214,427	$ 229,139	$ 211,234	$ 212,698	$ 1,105,582
Less: "Off the Top" Expenses						
SANDAG Planning Studies	$ (301)	$ (307)	$ (309)	$ (316)	$ (322)	$ (1,555)
Funding Shift to Operations	(50,000)	(50,000)	(50,000)	(50,000)	(50,000)	(250,000)
ADA Operations	(6,400)	(6,483)	(6,480)	(6,478)	(6,475)	(32,316)
Preventative Maintenance	(72,000)	(73,990)	(75,990)	(77,990)	(79,990)	(379,960)
Total "Off The Top" Expenses	$ (128,700)	$ (130,780)	$ (132,780)	$ (134,784)	$ (136,788)	$ (663,831)
Adjusted Available CIP Revenues	**$ 109,383**	**$ 83,647**	**$ 96,359**	**$ 76,450**	**$ 75,911**	**$ 441,751**
Project Needs						
State of Good Repair	$ 103,661	$ 168,582	$ 117,907	$ 168,038	$ 161,337	$ 719,525
Other Initiatives	89,218	142,248	108,551	96,000	82,474	518,491
Total Project Needs	**$ 192,879**	**$ 310,830**	**$ 226,458**	**$ 264,038**	**$ 243,811**	**$ 1,238,016**
Total Deficit	**$ (83,496)**	**$ (227,183)**	**$ (130,098)**	**$ (187,588)**	**$ (167,900)**	**$ (796,265)**
% of Funding / Needs	56.7%	26.9%	42.6%	29.0%	31.1%	35.7%

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SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
FISCAL YEAR 2027
SECTION 9.01

	Federal	TDA	STA	State - Other	TransNet	Other Local	Other Non Operating	Reserves/ Carryovers	Total
SDTC	25,000,000	13,641,683	11,300,000	20,039,867	45,485,755	-	-	-	115,467,305
SDTI	42,500,000	56,691,357	-	10,406,603	25,948,862	-	-	-	135,546,822
MCS 801 - South Central	10,500,000	27,525,267	-	10,353,342	-	-	-	-	48,378,609
MCS 802 - South Bay BRT	-	115,865	-	-	5,799,769	-	-	-	5,915,634
MCS 803 - South Bay Iris Rapid	-	-	-	3,700,593	-	-	-	-	3,700,593
MCS 820 - East County	-	12,465,410	-	2,984,661	-	-	-	-	15,450,071
MCS 825 - Rural	350,000	786,497	-	-	-	-	-	-	1,136,497
MCS 830 - Commuter Express	-	576,020	-	-	-	1,000,000	-	-	1,576,020
MCS 831 - Murphy Canyon	-	-	-	-	-	-	-	-	-
MCS 835 - Central Routes 961-965	200,000	4,460,612	-	1,279,140	-	-	-	-	5,939,753
MCS 840 - Regional Transit Center Maintenance	-	770,404	-	-	-	-	-	-	770,404
MCS 841 - Iris Rapid Transit Center Maintenance	-	-	-	-	-	-	-	-	-
MCS 845 - BRT Superloop	-	-	-	-	418,571	-	-	-	418,571
MCS 846 - I15 Transit Center Maintenance	-	-	-	-	1,324,771	-	-	-	1,324,771
MCS 847 - Mid City Transit Center Maintenance	-	-	-	-	334,484	-	-	-	334,484
MCS 848 - South Bay BRT Transit Center Maintenance	-	-	-	-	1,255,998	-	-	-	1,255,998
MCS 850 - ADA Access	6,403,312	14,775,276	-	-	1,316,054	120,000	-	-	22,614,642
MCS 856 - ADA Certification	-	756,379	-	-	-	-	-	-	756,379
Coronado Ferry	-	336,871	-	-	-	-	-	-	336,871
Administrative Pass Thru	-	530,394	-	-	-	-	-	-	530,394
Subtotal Operations	84,953,312	133,432,034	11,300,000	48,764,207	81,884,264	1,120,000	-	-	361,453,817
FHV Administration	-	-	-	-	-	-	-	116,321	116,321
SD&AE	-	-	-	-	-	-	-	(198,919)	(198,919)
Subtotal Other Activities	-	-	-	-	-	-	-	(82,598)	(82,598)
Administrative	500,000	-	-	3,500,000	624,145	-	-	-	4,624,145
Grand Total	85,453,312	133,432,034	11,300,000	52,264,207	82,508,410	1,120,000	-	(82,598)	365,995,365

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
FISCAL YEAR 2027
SECTION 9.02

	FTA 5307 Preventative Maintenance	FTA 5307 CARES/ARP Act	Federal Other	FTA 5311/ 5311(f) Rural	TDA Article 4.0	TDA Article 4.5 ADA
SDTC	25,000,000	-	-	-	13,641,683	-
SDTI	42,500,000	-	-	-	56,691,357	-
MCS 801 - South Central	10,500,000	-	-	-	27,525,267	-
MCS 802 - South Bay BRT	-	-	-	-	115,865	-
MCS 803 - South Bay Iris Rapid	-	-	-	-	-	-
MCS 820 - East County	-	-	-	-	12,465,410	-
MCS 825 - Rural	-	-	-	350,000	786,497	-
MCS 830 - Commuter Express	-	-	-	-	-	-
MCS 835 - Central Routes 961-965	-	-	-	200,000	4,460,612	-
MCS 840 - Regional Transit Center Maintenance	-	-	-	-	770,404	-
MCS 841 - Iris Rapid Transit Center Maintenance	-	-	-	-	-	-
MCS 845 - BRT Superloop	-	-	-	-	-	-
MCS 846 - I15 Transit Center Maintenance	-	-	-	-	-	-
MCS 847 - Mid City Transit Center Maintenance	-	-	-	-	-	-
MCS 848 - South Bay BRT Transit Center Maintenance	-	-	-	-	-	-
MCS 850 - ADA Access	6,403,312	-	-	-	8,652,028	6,123,248
MCS 856 - ADA Certification	-	-	-	-	-	756,379
Coronado Ferry	-	-	-	-	-	-
Administrative Pass Thru	-	-	-	-	530,394	-
Subtotal Operations	84,403,312	-	-	550,000	125,639,516	6,879,627
FHV Administration	-	-	-	-	-	-
SD&AE	-	-	-	-	-	-
Subtotal Other Activities	-	-	-	-	-	-
Administrative	-	-	500,000	-	-	-
Grand Total	84,403,312	0	500,000	550,000	125,639,516	6,879,627

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
FISCAL YEAR 2027
SECTION 9.02

	TDA Article 8.0	STA Formula	TIRCP	Medical	TransNet Operating	TransNet Access ADA	TransNet Other
SDTC	-	11,300,000	20,039,867	-	27,515,505	-	17,970,250
SDTI	-	-	10,406,603	-	14,337,726	-	11,611,137
MCS 801 - South Central	-	-	10,353,342	-	-	-	-
MCS 802 - South Bay BRT	-	-	-	-	-	-	5,799,769
MCS 803 - South Bay Iris Rapid	-	-	3,700,593	-	-	-	-
MCS 820 - East County	-	-	2,984,661	-	-	-	-
MCS 825 - Rural	-	-	-	-	-	-	-
MCS 830 - Commuter Express	576,020	-	-	-	-	-	-
MCS 835 - Central Routes 961-965	-	-	1,279,140	-	-	-	-
MCS 840 - Regional Transit Center Maintenance	-	-	-	-	-	-	-
MCS 841 - Iris Rapid Transit Center Maintenance	-	-	-	-	-	-	-
MCS 845 - BRT Superloop	-	-	-	-	-	-	418,571
MCS 846 - I15 Transit Center Maintenance	-	-	-	-	-	-	1,324,771
MCS 847 - Mid City Transit Center Maintenance	-	-	-	-	-	-	334,484
MCS 848 - South Bay BRT Transit Center Maintenance	-	-	-	-	-	-	1,255,998
MCS 850 - ADA Access	-	-	-	-	-	1,256,054	60,000
MCS 856 - ADA Certification	-	-	-	-	-	-	-
Coronado Ferry	336,871	-	-	-	-	-	-
Administrative Pass Thru	-	-	-	-	-	-	-
Subtotal Operations	912,891	11,300,000	48,764,207	-	41,853,231	1,256,054	38,774,979
FHV Administration	-	-	-	-	-	-	-
SD&AE	-	-	-	-	-	-	-
Subtotal Other Activities	-	-	-	-	-	-	-
Administrative	-	-	3,500,000	-	-	-	624,145
Grand Total	912,891	11,300,000	52,264,207	-	41,853,231	1,256,054	39,399,125

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
FISCAL YEAR 2027
SECTION 9.02

	City of San Diego	SANDAG FasTrak	Other Local	Reserves/ Carryovers	Total
SDTC	-	-	-	-	115,467,305
SDTI	-	-	-	-	135,546,822
MCS 801 - South Central	-	-	-	-	48,378,609
MCS 802 - South Bay BRT	-	-	-	-	5,915,634
MCS 803 - South Bay Iris Rapid	-	-	-	-	3,700,593
MCS 820 - East County	-	-	-	-	15,450,071
MCS 825 - Rural	-	-	-	-	1,136,497
MCS 830 - Commuter Express	-	1,000,000	-	-	1,576,020
MCS 835 - Central Routes 961-965	-	-	-	-	5,939,753
MCS 840 - Regional Transit Center Maintenance	-	-	-	-	770,404
MCS 841 - Iris Rapid Transit Center Maintenance	-	-	-	-	-
MCS 845 - BRT Superloop	-	-	-	-	418,571
MCS 846 - I15 Transit Center Maintenance	-	-	-	-	1,324,771
MCS 847 - Mid City Transit Center Maintenance	-	-	-	-	334,484
MCS 848 - South Bay BRT Transit Center Maintenance	-	-	-	-	1,255,998
MCS 850 - ADA Access	120,000	-	-	-	22,614,642
MCS 856 - ADA Certification	-	-	-	-	756,379
Coronado Ferry	-	-	-	-	336,871
Administrative Pass Thru	-	-	-	-	530,394
Subtotal Operations	120,000	1,000,000	-	-	361,453,817
FHV Administration	-	-	-	116,321	116,321
SD&AE	-	-	-	(198,919)	(198,919)
Subtotal Other Activities	-	-	-	(82,598)	(82,598)
Administrative	-	-	-	-	4,624,145
Grand Total	120,000	1,000,000	0	(82,598)	365,995,365

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
MTS CONSOLIDATED

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
MTS Consolidated		
Operating Revenue		
Passenger Revenue	83,014,390	401100-409235
Other Income	33,489,800	409150-429900
Total Operating Revenue	**116,504,190**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning	-	451100
FTA 5307/5309 - Preventative Maintenance	84,403,312	451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other	500,000	451800
FTA 5311 - Rural	450,000	451900
FTA 5311(f) - Rural	100,000	451950
Total Federal Revenue	**85,453,312**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	125,639,516	461100
TDA - Article 4.5 (ADA)	6,879,627	461200
TDA - Article 8.0	912,891	461300
Total TDA Revenue	**133,432,034**	
TransNet Revenue		
TransNet - Operating Support	41,853,231	471100
TransNet - Access ADA	1,256,054	471300
TransNet - SuperLoop, Other	39,399,125	471400
Total TransNet Revenue	**82,508,410**	
State Transit Assistance (STA) Revenue		
STA - Formula	11,300,000	462200
Total STA Revenue	**11,300,000**	
Other State Revenue		
TIRCP	52,264,207	463910
MediCal	-	463400
Total Other State Revenue	**52,264,207**	
Other Local Revenue		
SANDAG - FasTrak	1,000,000	481100
City of San Diego	120,000	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**1,120,000**	
Total Subsidy Revenue	**366,077,962**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves	(82,598)	491100
Carryovers	-	
Total Other Funds / Reserves	**(82,598)**	
Total Non Operating Revenue	**365,995,365**	
Total Revenue	482,499,555	
Total Expenses	482,499,555	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
ADMINISTRATIVE

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Administrative		
Operating Revenue		
Passenger Revenue		401100-409235
Other Income	31,187,312	409150-429900
Total Operating Revenue	**31,187,312**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other	500,000	459900
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**500,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	624,145	471400
Total TransNet Revenue	**624,145**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	3,500,000	463910
MediCal		463400
Total Other State Revenue	**3,500,000**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**4,624,145**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves		491100
Carryovers	-	
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**4,624,145**	
Total Revenue	35,811,457	
Total Expenses	35,811,457	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Operations Consolidated		
Operating Revenue		
Passenger Revenue	83,014,390	401100-409235
Other Income	1,074,720	409150-429900
Total Operating Revenue	**84,089,110**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning	-	451100
FTA 5307/5309 - Preventative Maintenance	84,403,312	451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other	-	451800
FTA 5311 - Rural	450,000	451900
FTA 5311(f) - Rural	100,000	451950
Total Federal Revenue	**84,953,312**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	125,639,516	461100
TDA - Article 4.5 (ADA)	6,879,627	461200
TDA - Article 8.0	912,891	461300
Total TDA Revenue	**133,432,034**	
TransNet Revenue		
TransNet - Operating Support	41,853,231	471100
TransNet - Access ADA	1,256,054	471300
TransNet - SuperLoop, Other	38,774,979	471400
Total TransNet Revenue	**81,884,264**	
State Transit Assistance (STA) Revenue		
STA - Formula	11,300,000	462200
Total STA Revenue	**11,300,000**	
Other State Revenue		
TIRCP	48,764,207	463910
MediCal	-	463400
Total Other State Revenue	**48,764,207**	
Other Local Revenue		
SANDAG - FasTrak	1,000,000	481100
City of San Diego	120,000	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**1,120,000**	
Total Subsidy Revenue	**361,453,817**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves	-	491100
Carryovers	-	
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**361,453,817**	
Total Revenue	445,542,927	
Total Expenses	445,542,927	
Net of Revenues over Expense	(0)	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Bus Operations (San Diego Transit Corp)		
Operating Revenue		
Passenger Revenue	20,988,765	401100-409235
Other Income	30,000	409150-429900
Total Operating Revenue	**21,018,765**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance	25,000,000	451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**25,000,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	13,641,683	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0	-	461300
Total TDA Revenue	**13,641,683**	
TransNet Revenue		
TransNet - Operating Support	27,515,505	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	17,970,250	471400
Total TransNet Revenue	**45,485,755**	
State Transit Assistance (STA) Revenue		
STA - Formula	11,300,000	462200
Total STA Revenue	**11,300,000**	
Other State Revenue		
TIRCP	20,039,867	463910
MediCal		463400
Total Other State Revenue	**20,039,867**	
Other Local Revenue		
SANDAG - FasTrak	-	481100
City of San Diego	-	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**115,467,305**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers	-	
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**115,467,305**	
Total Revenue	136,486,070	
Total Expenses	136,486,071	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Rail Operations (San Diego Trolley)		
Operating Revenue		
Passenger Revenue	34,379,372	401100-409235
Other Income	1,044,720	409150-429900
Total Operating Revenue	**35,424,092**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance	42,500,000	451250
FTA 5307 - CARES/ARP		459900
FTA - Other	-	451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**42,500,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	56,691,357	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**56,691,357**	
TransNet Revenue		
TransNet - Operating Support	14,337,726	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	11,611,137	471400
Total TransNet Revenue	**25,948,862**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	10,406,603	463910
MediCal		463400
Total Other State Revenue	**10,406,603**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**135,546,822**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**135,546,822**	
Total Revenue	170,970,914	
Total Expenses	170,970,914	
Net of Revenues over Expense	0	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations Consolidated		
Operating Revenue		
Passenger Revenue	27,646,253	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**27,646,253**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning	-	451100
FTA 5307/5309 - Preventative Maintenance	16,903,312	451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other	-	451800
FTA 5311 - Rural	450,000	451900
FTA 5311(f) - Rural	100,000	451950
Total Federal Revenue	**17,453,312**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	54,776,083	461100
TDA - Article 4.5 (ADA)	6,879,627	461200
TDA - Article 8.0	576,020	461300
Total TDA Revenue	**62,231,729**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA	1,256,054	471300
TransNet - SuperLoop, Other	9,193,593	471400
Total TransNet Revenue	**10,449,647**	
State Transit Assistance (STA) Revenue		
STA - Formula	-	462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	18,317,736	463910
MediCal	-	463400
Total Other State Revenue	**18,317,736**	
Other Local Revenue		
SANDAG - FasTrak	1,000,000	481100
City of San Diego	120,000	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**1,120,000**	
Total Subsidy Revenue	**109,572,425**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves	-	491100
Carryovers	-	
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**109,572,425**	
Total Revenue	137,218,678	
Total Expenses	137,218,678	
Net of Revenues over Expense	0	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations - Fixed Route Consolidated		
Operating Revenue		
Passenger Revenue	25,694,734	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**25,694,734**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning	-	451100
FTA 5307/5309 - Preventative Maintenance	10,500,000	451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other	-	451800
FTA 5311 - Rural	450,000	451900
FTA 5311(f) - Rural	100,000	451950
Total Federal Revenue	**11,050,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	46,124,055	461100
TDA - Article 4.5 (ADA)	-	461200
TDA - Article 8.0	576,020	461300
Total TDA Revenue	**46,700,074**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA	-	471300
TransNet - SuperLoop, Other	9,133,593	471400
Total TransNet Revenue	**9,133,593**	
State Transit Assistance (STA) Revenue		
STA - Formula	-	462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	18,317,736	463910
MediCal	-	463400
Total Other State Revenue	**18,317,736**	
Other Local Revenue		
SANDAG - FasTrak	1,000,000	481100
City of San Diego	-	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**1,000,000**	
Total Subsidy Revenue	**86,201,404**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves	-	491100
Carryovers	-	
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**86,201,404**	
Total Revenue	111,896,138	
Total Expenses	111,896,138	
Net of Revenues over Expense	0	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (801 - South Bay)		
Operating Revenue		
Passenger Revenue	17,777,322	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**17,777,322**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance	10,500,000	451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**10,500,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	27,525,267	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**27,525,267**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	10,353,342	463910
MediCal		463400
Total Other State Revenue	**10,353,342**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**48,378,609**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**48,378,609**	
Total Revenue	66,155,931	
Total Expenses	66,155,931	
Net of Revenues over Expense	0	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (802 - South Bay BRT)		
Operating Revenue		
Passenger Revenue	958,862	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**958,862**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other	-	451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	115,865	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**115,865**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	5,799,769	471400
Total TransNet Revenue	**5,799,769**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**5,915,634**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**5,915,634**	
Total Revenue	6,874,496	
Total Expenses	6,874,496	
Net of Revenues over Expense	0	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (803 - South Bay Iris Rapid Operations)		
Operating Revenue		
Passenger Revenue	1,152,954	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**1,152,954**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	3,700,593	463910
MediCal		463400
Total Other State Revenue	**3,700,593**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**3,700,593**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**3,700,593**	
Total Revenue	4,853,547	
Total Expenses	4,853,547	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (820 - East County)		
Operating Revenue		
Passenger Revenue	4,262,577	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**4,262,577**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	12,465,410	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**12,465,410**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	2,984,661	463910
MediCal		463400
Total Other State Revenue	**2,984,661**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**15,450,071**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**15,450,071**	
Total Revenue	19,712,648	
Total Expenses	19,712,648	
Net of Revenues over Expense	(0)	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (825 - Rural)		
Operating Revenue		
Passenger Revenue	226,890	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**226,890**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural	250,000	451900
FTA 5311(f) - Rural	100,000	451950
Total Federal Revenue	**350,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	786,497	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**786,497**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**1,136,497**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**1,136,497**	
Total Revenue	1,363,387	
Total Expenses	1,363,387	
Net of Revenues over Expense	(0)	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (830 - Commuter Express)		
Operating Revenue		
Passenger Revenue	420,038	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**420,038**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0	576,020	461300
Total TDA Revenue	**576,020**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak	1,000,000	481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**1,000,000**	
Total Subsidy Revenue	**1,576,020**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**1,576,020**	
Total Revenue	1,996,057	
Total Expenses	1,996,057	0.500987652
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (835 - Minibus)		
Operating Revenue		
Passenger Revenue	896,092	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**896,092**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural	200,000	451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**200,000**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	4,460,612	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**4,460,612**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP	1,279,140	463910
MediCal		463400
Total Other State Revenue	**1,279,140**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**5,939,753**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**5,939,753**	
Total Revenue	6,835,844	
Total Expenses	6,835,844	
Net of Revenues over Expense	(0)	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (840 - Transit Center Maintenance)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	770,404	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**770,404**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	-	471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**770,404**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**770,404**	
Total Revenue	770,404	
Total Expenses	770,404	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (841 - Iris Rapid Transit Center Maintenance)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	-	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**-**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**-**	
Total Revenue	-	
Total Expenses	-	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (845 - BRT Superloop)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	-	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	418,571	471400
Total TransNet Revenue	**418,571**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**418,571**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**418,571**	
Total Revenue	418,571	
Total Expenses	418,571	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (846 - I15 Transit Center Maintenance)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	-	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	1,324,771	471400
Total TransNet Revenue	**1,324,771**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**1,324,771**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**1,324,771**	
Total Revenue	1,324,771	
Total Expenses	1,324,771	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (847 - Mid City Transit Center Maintenance)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	-	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	334,484	471400
Total TransNet Revenue	**334,484**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**334,484**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**334,484**	
Total Revenue	334,484	
Total Expenses	334,484	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (848 - South Bay BRT Transit Center Maintenance)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other	1,255,998	471400
Total TransNet Revenue	**1,255,998**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**1,255,998**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**1,255,998**	
Total Revenue	1,255,998	
Total Expenses	1,255,998	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations - Paratransit Consolidated		
Operating Revenue		
Passenger Revenue	1,951,519	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**1,951,519**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning	-	451100
FTA 5307/5309 - Preventative Maintenance	6,403,312	451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other	-	451800
FTA 5311 - Rural	-	451900
FTA 5311(f) - Rural	-	451950
Total Federal Revenue	**6,403,312**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	8,652,028	461100
TDA - Article 4.5 (ADA)	6,879,627	461200
TDA - Article 8.0	-	461300
Total TDA Revenue	**15,531,655**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA	1,256,054	471300
TransNet - SuperLoop, Other	60,000	471400
Total TransNet Revenue	**1,316,054**	
State Transit Assistance (STA) Revenue		
STA - Formula	-	462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal	-	463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak	-	481100
City of San Diego	120,000	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**120,000**	
Total Subsidy Revenue	**23,371,021**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves	-	491100
Carryovers	-	
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**23,371,021**	
Total Revenue	25,322,540	
Total Expenses	25,322,540	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (850 - ADA Access)		
Operating Revenue		
Passenger Revenue	1,951,519	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**1,951,519**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance	6,403,312	451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**6,403,312**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	8,652,028	461100
TDA - Article 4.5 (ADA)	6,123,248	461200
TDA - Article 8.0		461300
Total TDA Revenue	**14,775,276**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA	1,256,054	471300
TransNet - SuperLoop, Other	60,000	471400
Total TransNet Revenue	**1,316,054**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal	-	463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego	120,000	481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**120,000**	
Total Subsidy Revenue	**22,614,642**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**22,614,642**	
Total Revenue	24,566,161	
Total Expenses	24,566,161	
Net of Revenues over Expense	0	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Contracted Bus Operations (856 - ADA Certification)		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)	756,379	461200
TDA - Article 8.0		461300
Total TDA Revenue	**756,379**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**756,379**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**756,379**	
Total Revenue	756,379	
Total Expenses	756,379	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Coronado Ferry		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0	336,871	461300
Total TDA Revenue	**336,871**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**336,871**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**336,871**	
Total Revenue	336,871	
Total Expenses	336,871	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OPERATIONS

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Administrative Pass Thru		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	-	409150-429900
Total Operating Revenue	**-**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	530,394	461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**530,394**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**530,394**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves		491100
Carryovers		
Total Other Funds / Reserves	**-**	
Total Non Operating Revenue	**530,394**	
Total Revenue	530,394	
Total Expenses	530,394	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OTHER ACTIVITIES

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
Other Activities - Consolidated		
Operating Revenue		
Passenger Revenue	-	401100-409235
Other Income	1,227,768	409150-429900
Total Operating Revenue	**1,227,768**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning	-	451100
FTA 5307/5309 - Preventative Maintenance	-	451250
FTA 5307 - CARES/ARP	-	459900
FTA - Other	-	451800
FTA 5311 - Rural	-	451900
FTA 5311(f) - Rural	-	451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area	-	461100
TDA - Article 4.5 (ADA)	-	461200
TDA - Article 8.0	-	461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support	-	471100
TransNet - Access ADA	-	471300
TransNet - SuperLoop, Other	-	471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula	-	462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal	-	463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak	-	481100
City of San Diego	-	481200
Other Local	-	481400
CNG Credits	-	424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**-**	
Other Funds / Reserves		
Contingency Reserves	-	491100
Other Reserves	(82,598)	491100
Carryovers	-	
Total Other Funds / Reserves	**(82,598)**	
Total Non Operating Revenue	**(82,598)**	
Total Revenue	1,145,170	
Total Expenses	1,145,170	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OTHER ACTIVITIES

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
FHV Administration		
Operating Revenue		
Passenger Revenue		401100-409235
Other Income	861,425	409150-429900
Total Operating Revenue	**861,425**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**-**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves	116,321	491100
Carryovers		
Total Other Funds / Reserves	**116,321**	
Total Non Operating Revenue	**116,321**	
Total Revenue	977,746	
Total Expenses	977,746	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
NON OPERATING FUNDING SOURCES BY ACTIVITY
SECTION 9.03 - FUNDING SOURCES BY ACTIVITY
OTHER ACTIVITIES

FUNDING SOURCE DESCRIPTION	AMOUNT	INTERNAL MTS CODE
San Diego and Arizona Eastern Railroad		
Operating Revenue		
Passenger Revenue		401100-409235
Other Income	366,343	409150-429900
Total Operating Revenue	**366,343**	
Non Operating/Subsidy Revenue		
Federal Revenue		
FTA 5307 - Planning		451100
FTA 5307/5309 - Preventative Maintenance		451250
FTA 5307 - CARES/ARP		459900
FTA - Other		451800
FTA 5311 - Rural		451900
FTA 5311(f) - Rural		451950
Total Federal Revenue	**-**	
Transportation Development Act (TDA Revenue)		
TDA - Article 4.0 MTS Area		461100
TDA - Article 4.5 (ADA)		461200
TDA - Article 8.0		461300
Total TDA Revenue	**-**	
TransNet Revenue		
TransNet - Operating Support		471100
TransNet - Access ADA		471300
TransNet - SuperLoop, Other		471400
Total TransNet Revenue	**-**	
State Transit Assistance (STA) Revenue		
STA - Formula		462200
Total STA Revenue	**-**	
Other State Revenue		
TIRCP		463910
MediCal		463400
Total Other State Revenue	**-**	
Other Local Revenue		
SANDAG - FasTrak		481100
City of San Diego		481200
Other Local		481400
CNG Credits		424100
Total Other Local Revenue	**-**	
Total Subsidy Revenue	**-**	
Other Funds / Reserves		
Contingency Reserves		491100
Other Reserves	(198,919)	491100
Carryovers		
Total Other Funds / Reserves	**(198,919)**	
Total Non Operating Revenue	**(198,919)**	
Total Revenue	167,424	
Total Expenses	167,424	
Net of Revenues over Expense	-	

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
FIVE YEAR FINANCIAL PROJECTIONS ($000s)
FISCAL YEAR 2027
SECTION 10.01

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	PROJECTED FY28	PROJECTED FY29	PROJECTED FY30	PROJECTED FY31
TOTAL OPERATING REVENUES	$ 114,073	$ 114,298	$ 116,504	$ 116,854	$ 118,176	$ 120,197	$ 122,452
RECURRING SUBSIDY FUNDING	253,170	250,250	263,814	269,435	275,145	280,867	286,603
TOTAL RECURRING REVENUES	**$ 367,244**	**$ 364,549**	**$ 380,318**	**$ 386,289**	**$ 393,321**	**$ 401,065**	**$ 409,054**
PERSONNEL EXPENSES	$ 194,616	$ 202,793	$ 207,741	$ 216,893	$ 226,550	$ 236,738	$ 247,502
OUTSIDE SERVICES	161,157	172,699	174,644	178,718	183,841	188,972	194,341
MATERIALS AND SUPPLIES	18,318	21,334	21,940	19,897	20,555	21,178	21,807
ENERGY	45,691	50,990	52,613	55,455	58,833	62,945	67,509
RISK MANAGEMENT	10,841	13,599	15,729	14,451	13,687	14,064	14,450
OTHER	9,095	9,650	9,832	10,048	10,269	10,479	10,694
TOTAL OPERATING EXPENSES	**$ 439,717**	**$ 471,065**	**$ 482,500**	**$ 495,462**	**$ 513,736**	**$ 534,375**	**$ 556,303**
RECURRING OPERATING INCOME (DEFICIT)	**$ (72,474)**	**$ (106,516)**	**$ (102,182)**	**$ (109,173)**	**$ (120,415)**	**$ (133,310)**	**$ (147,249)**
FEDERAL STIMULUS REVENUES	47,417						
SB125 TIRCP	9,018	13,535	52,264	59,105	70,281	2,606	
SHIFT OF FLEXIBLE FUNDING FROM CAPITAL TO OPS		25,000	50,000	50,000	50,000	50,000	50,000
NON RECURRING REVENUES	19,359	67,981	(83)	68	134	173	205
TOTAL OPERATING INCOME (DEFICIT)	**$ 3,320**	**$ -**	**$ -**	**$ -**	**$ -**	**$ (80,532)**	**$ (97,044)**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STATISTICAL SUMMARY
FISCAL YEAR 2027
SECTION 10.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	VARIANCE	% CHANGE BUDGET/ AMENDED
PASSENGER REVENUE					
BUS OPERATIONS	20,708,203	20,779,433	20,988,765	209,332	1.0%
RAIL OPERATIONS	31,643,598	32,900,326	34,379,372	1,479,046	4.5%
CONTRACTED SERVICES - FIXED ROUTE	23,975,174	25,351,465	25,694,734	343,269	1.4%
CONTRACTED SERVICES - PARATRANSIT	1,569,684	1,788,902	1,951,519	162,617	9.1%
TOTAL PASSENGER REVENUES	**77,896,658**	**80,820,126**	**83,014,390**	**2,194,264**	**2.7%**
PASSENGERS					
BUS OPERATIONS	18,084,027	17,987,499	18,115,351	127,853	0.7%
RAIL OPERATIONS	42,625,577	42,224,053	44,064,184	1,840,132	4.4%
CONTRACTED SERVICES - FIXED ROUTE	19,863,806	20,208,255	20,486,361	278,107	1.4%
CONTRACTED SERVICES - PARATRANSIT	348,324	386,772	429,924	43,151	11.2%
TOTAL PASSENGERS	**80,921,734**	**80,806,578**	**83,095,820**	**2,289,242**	**2.8%**
AVERAGE FARE					
BUS OPERATIONS	1.145	1.155	1.159	-	0.0%
RAIL OPERATIONS	0.742	0.779	0.780	-	0.0%
CONTRACTED SERVICES - FIXED ROUTE	1.207	1.255	1.254	-	0.0%
CONTRACTED SERVICES - PARATRANSIT	4.506	4.625	4.539	(0.090)	-1.9%
TOTAL AVERAGE FARE	**0.963**	**1.000**	**0.999**	**-**	**-0.1%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STATISTICAL SUMMARY
FISCAL YEAR 2027
SECTION 10.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	VARIANCE	% CHANGE BUDGET/ AMENDED
REVENUE MILES					
BUS OPERATIONS	9,121,741	9,064,614	8,843,608	(221,006)	-2.4%
RAIL OPERATIONS	12,120,835	12,388,941	12,060,768	(328,174)	-2.6%
CONTRACTED SERVICES - FIXED ROUTE	11,705,566	11,556,752	11,274,219	(282,533)	-2.4%
CONTRACTED SERVICES - PARATRANSIT	3,383,445	3,728,241	4,298,128	569,887	15.3%
TOTAL REVENUE MILES	**36,331,586**	**36,738,548**	**36,476,723**	**(261,826)**	**-0.7%**
TOTAL MILES					
BUS OPERATIONS	10,368,935	10,314,616	10,003,095	(311,520)	-3.0%
RAIL OPERATIONS	12,482,741	12,809,306	12,472,770	(336,536)	-2.6%
CONTRACTED SERVICES - FIXED ROUTE	13,746,446	13,591,098	13,261,178	(329,920)	-2.4%
CONTRACTED SERVICES - PARATRANSIT	4,576,001	4,654,367	5,469,556	815,189	17.5%
TOTAL MILES	**41,174,123**	**41,369,387**	**41,206,599**	**(162,788)**	**-0.4%**
REVENUE HOURS					
BUS OPERATIONS	792,253	783,453	764,431	(19,022)	-2.4%
RAIL OPERATIONS	667,537	703,549	690,096	(13,454)	-1.9%
CONTRACTED SERVICES - FIXED ROUTE	1,110,108	1,097,602	1,076,795	(20,807)	-1.9%
CONTRACTED SERVICES - PARATRANSIT	222,025	192,517	210,048	17,530	9.1%
TOTAL REVENUE HOURS	**2,791,923**	**2,777,121**	**2,741,368**	**(35,752)**	**-1.3%**
TOTAL HOURS					
BUS OPERATIONS	849,825	829,747	806,197	(23,550)	-2.8%
RAIL OPERATIONS	689,158	719,544	696,791	(22,752)	-3.2%
CONTRACTED SERVICES - FIXED ROUTE	1,204,319	1,168,057	1,148,812	(19,245)	-1.6%
CONTRACTED SERVICES - PARATRANSIT	269,285	255,408	300,064	44,656	17.5%
TOTAL HOURS	**3,012,588**	**2,972,756**	**2,951,864**	**(20,891)**	**-0.7%**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STATISTICAL SUMMARY
FISCAL YEAR 2027
SECTION 10.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	VARIANCE	% CHANGE BUDGET/ AMENDED
TOTAL OPERATING COSTS *					
BUS OPERATIONS	121,273,445	127,222,018	126,695,664	(526,354)	-0.4%
RAIL OPERATIONS	119,591,346	135,861,429	136,904,032	1,042,603	0.8%
CONTRACTED SERVICES - FIXED ROUTE	104,951,527	107,183,795	108,903,647	1,719,852	1.6%
CONTRACTED SERVICES - PARATRANSIT	21,135,957	21,857,038	24,586,501	2,729,463	12.5%
CORONADO FERRY	320,110	331,816	336,871	5,055	1.5%
ADMINISTRATIVE PASS THROUGH	365,593	522,434	530,394	7,960	1.5%
TOTAL OPERATING COSTS	**367,637,978**	**392,978,530**	**397,957,109**	**4,978,579**	**1.3%**
TOTAL PASSENGERS / REVENUE HOUR					
BUS OPERATIONS	22.8	23.0	23.7	0.7	3.2%
RAIL OPERATIONS	63.9	60.0	63.9	3.8	6.4%
CONTRACTED SERVICES - FIXED ROUTE	17.9	18.4	19.0	0.6	3.3%
CONTRACTED SERVICES - PARATRANSIT	1.6	2.0	2.0	0.0	1.9%
TOTAL PASSENGERS / REVENUE HOUR	**29.0**	**29.1**	**30.3**	**1.2**	**4.2%**
TOTAL FAREBOX RECOVERY					
BUS OPERATIONS	17.1%	16.3%	16.6%	0.2%	1.4%
RAIL OPERATIONS	26.5%	24.2%	25.1%	0.9%	3.7%
CONTRACTED SERVICES - FIXED ROUTE	22.8%	23.7%	23.6%	-0.1%	-0.2%
CONTRACTED SERVICES - PARATRANSIT	7.4%	8.2%	7.9%	-0.2%	-3.0%
TOTAL FAREBOX RECOVERY	**21.2%**	**20.6%**	**20.9%**	**0.3%**	**1.4%**

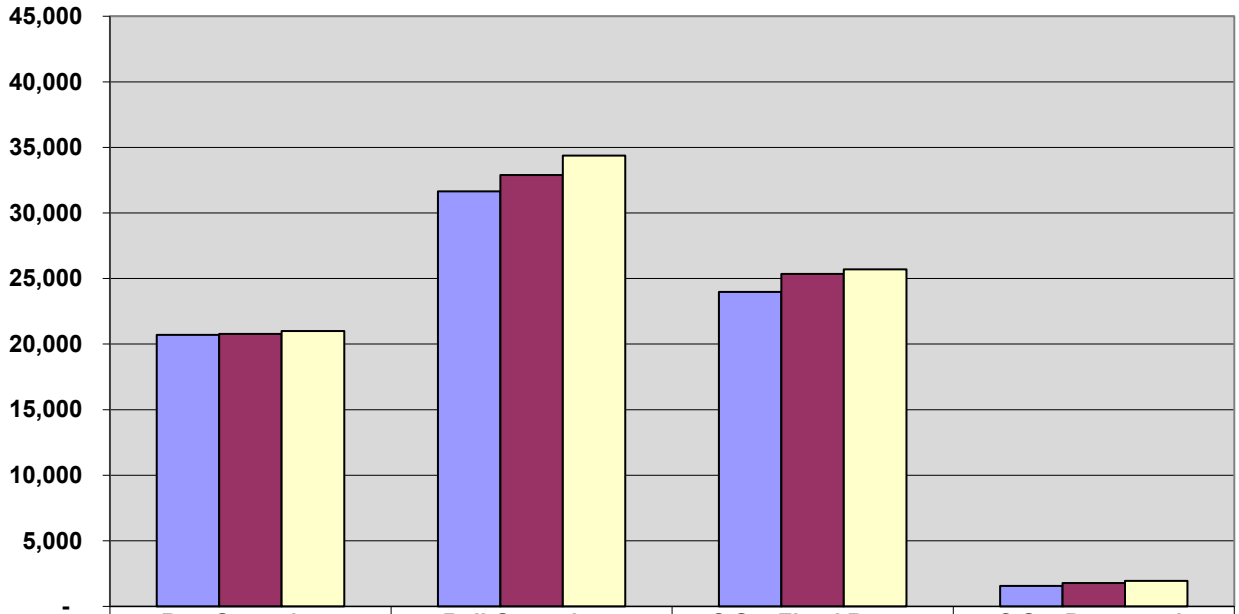
*** Includes the administrative overhead allocation of expenses.**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STATISTICAL SUMMARY
FISCAL YEAR 2027
SECTION 10.02

	ACTUAL FY25	AMENDED BUDGET FY26	PROPOSED BUDGET FY27	VARIANCE	% CHANGE BUDGET/ AMENDED
TOTAL OPERATING SUBSIDY					
BUS OPERATIONS	95,798,306	79,346,910	115,467,305	36,120,395	45.5%
RAIL OPERATIONS	102,210,121	99,724,760	135,546,822	35,822,062	35.9%
CONTRACTED SERVICES - FIXED ROUTE	83,462,420	84,660,191	86,201,404	1,541,213	1.8%
CONTRACTED SERVICES - PARATRANSIT	20,058,174	20,653,223	23,371,021	2,717,798	13.2%
CORONADO FERRY	320,110	331,816	336,871	5,055	1.5%
ADMINISTRATIVE PASS THROUGH	365,593	522,434	530,394	7,960	1.5%
TOTAL OPERATING SUBSIDY	**302,214,724**	**285,239,334**	**361,453,817**	**76,214,483**	**26.7%**
TOTAL SUBSIDY / PASSENGER					
BUS OPERATIONS	5.30	4.41	6.37	1.96	44.5%
RAIL OPERATIONS	2.40	2.36	3.08	0.71	30.2%
CONTRACTED SERVICES - FIXED ROUTE	4.20	4.19	4.21	0.02	0.4%
CONTRACTED SERVICES - PARATRANSIT	57.58	53.40	54.36	0.96	1.8%
TOTAL SUBSIDY / PASSENGER	**3.73**	**3.53**	**4.35**	**0.82**	**23.2%**

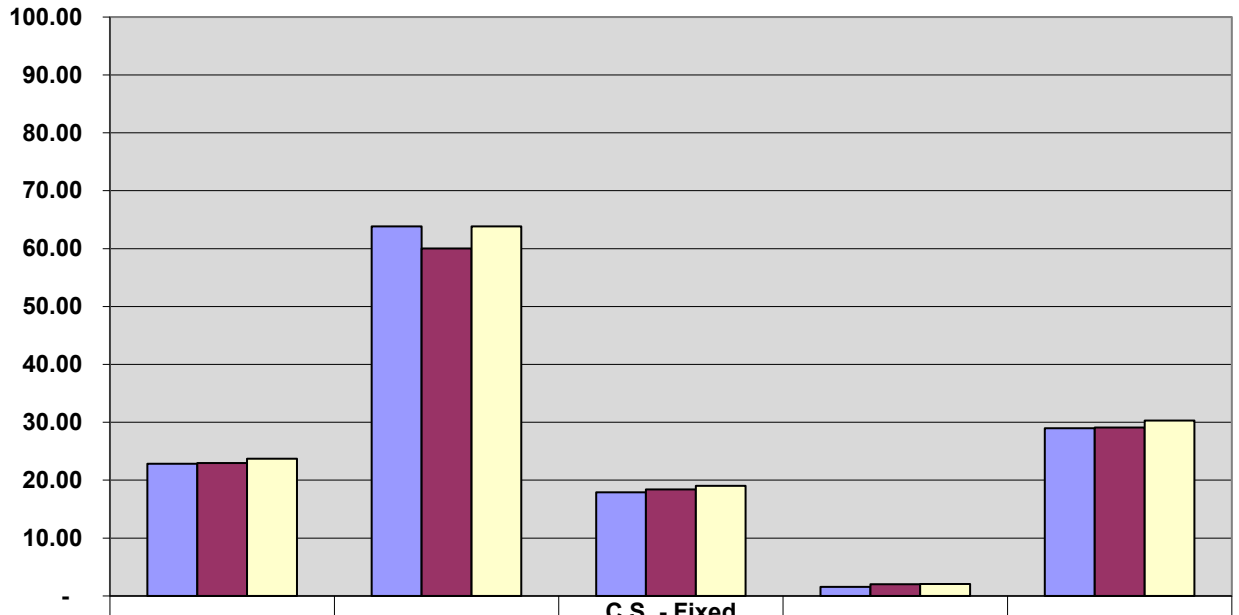
SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STATISTICAL SUMMARY
FISCAL YEAR 2027

Passenger Revenue (in 000's)



	Bus Operations	Rail Operations	C.S. - Fixed Route	C.S. - Paratransit
Actual FY25	20,708	31,644	23,975	1,570
Amended FY26	20,779	32,900	25,351	1,789
Budget FY27	20,989	34,379	25,695	1,952

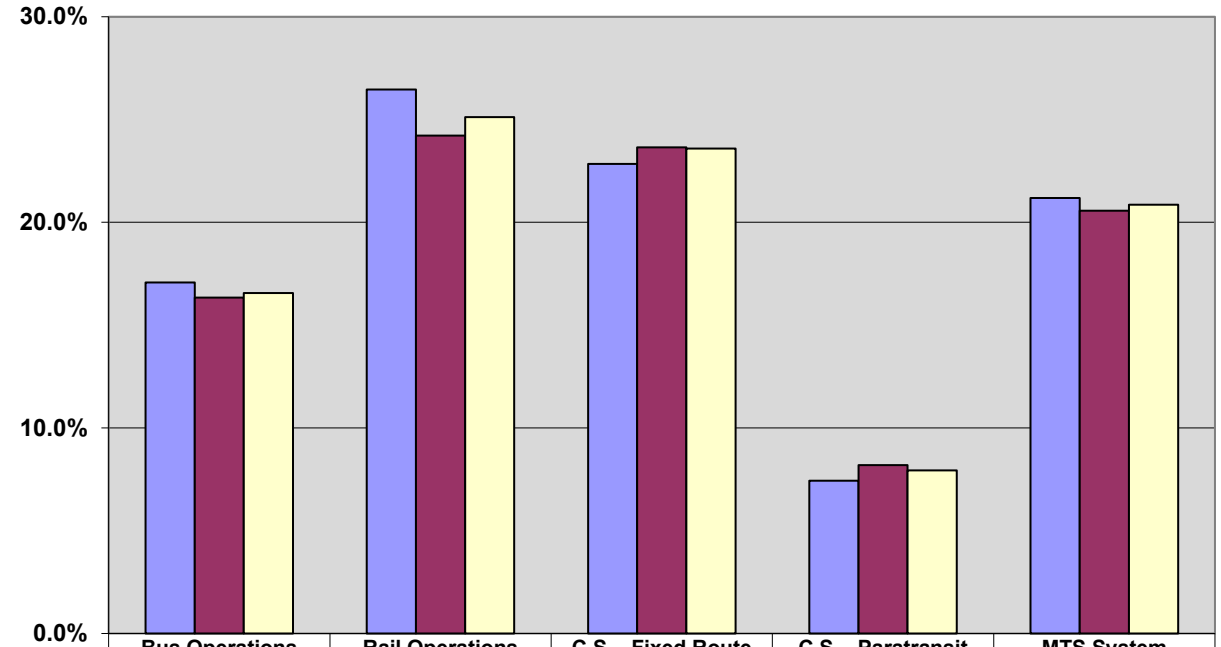
Passengers Per Revenue Hour



	Bus Operations	Rail Operations	C.S. - Fixed Route	C.S. - Paratransit	MTS System
Actual FY25	22.83	63.85	17.89	1.57	28.98
Amended FY26	22.96	60.02	18.41	2.01	29.10
Budget FY27	23.70	63.85	19.03	2.05	30.31

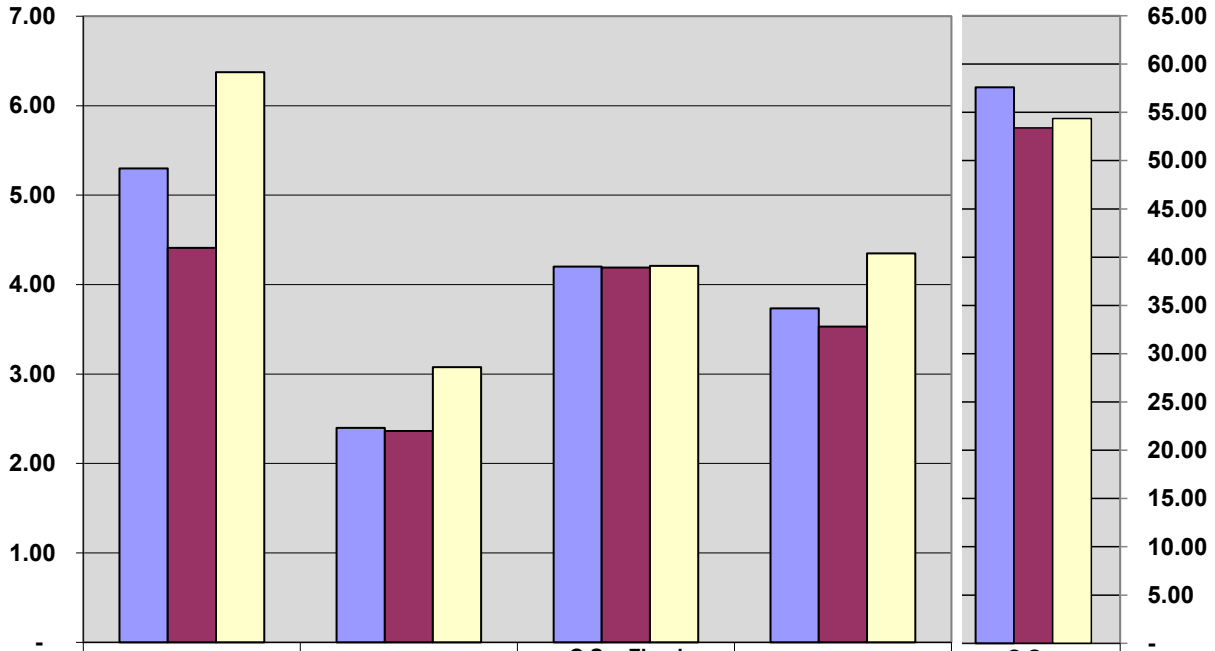
SAN DIEGO METROPOLITAN TRANSIT SYSTEM
STATISTICAL SUMMARY
FISCAL YEAR 2027

Farebox Recovery Ratio



	Bus Operations	Rail Operations	C.S. - Fixed Route	C.S. - Paratransit	MTS System
Actual FY25	17.1%	26.5%	22.8%	7.4%	21.2%
Amended FY26	16.3%	24.2%	23.7%	8.2%	20.6%
Budget FY27	16.6%	25.1%	23.6%	7.9%	20.9%

Operating Subsidy Per Passenger



	Bus Operations	Rail Operations	C.S. - Fixed Route	MTS System	C.S. - Paratransit
Actual FY25	5.30	2.40	4.20	3.73	57.58
Amended FY26	4.41	2.36	4.19	3.53	53.40
Budget FY27	6.37	3.08	4.21	4.35	54.36

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
POSITION INFORMATION (SUMMARY FORMAT)
FISCAL YEAR 2027 PROPOSED BUDGET
SECTION 10.03

	Amended Budget FY 2026	Position Shifts	Net Positons Requiring Funding Adjs	Proposed FY 2027	Frozen Positions
	FTE's	FTE's	FTE's	FTE's	FTE's
MTS Administration					
BOD ADMINISTRATION	2.0	0.0	0.0	2.0	0.0
CAPITAL PROJECTS	10.5	0.0	0.0	10.5	0.0
COMPASS CARD	0.0	0.0	0.0	0.0	0.0
EXECUTIVE	5.0	0.0	0.0	5.0	0.0
FARE SYSTEM	14.5	0.0	0.0	14.5	0.0
FINANCE	25.5	0.0	0.0	25.5	0.0
HUMAN RESOURCES	19.0	0.0	0.0	19.0	0.0
INFORMATION SECURITY	3.5	0.0	0.0	3.5	0.0
INFORMATION TECHNOLOGY	32.0	0.0	0.0	32.0	0.0
LEGAL	4.5	0.0	0.0	4.5	-1.0
MARKETING	11.0	0.0	0.0	11.0	0.0
PLANNING	9.5	0.0	0.0	9.5	0.0
PROCUREMENT	16.0	0.0	0.0	16.0	0.0
RIGHT OF WAY	2.0	0.0	0.0	2.0	0.0
RISK	4.0	0.0	0.0	4.0	0.0
SECURITY	139.0	0.0	0.0	139.0	0.0
STORES (ADMIN)	2.0	0.0	0.0	2.0	0.0
STORES (BUS)	13.0	0.0	0.0	13.0	0.0
STORES (RAIL)	7.0	0.0	0.0	7.0	0.0
TELEPHONE INFORMATION SERVICE	17.0	0.0	0.0	17.0	0.0
TRANSIT STORES	8.0	0.0	0.0	8.0	0.0
Subtotal MTS Administration	**345.0**	**0.0**	**0.0**	**345.0**	**-1.0**
Bus Operations					
CONTRACT SERVICES	8.5	0.0	0.0	8.5	0.0
EXECUTIVE (BUS)	2.0	0.0	0.0	2.0	0.0
MAINTENANCE	189.0	0.0	0.0	189.0	0.0
MAINTENANCE-FACILITY	5.0	0.0	0.0	5.0	0.0
PASSENGER SERVICES	9.0	0.0	0.0	9.0	0.0
REVENUE (BUS)	6.0	0.0	0.0	6.0	0.0
SAFETY	2.0	0.0	0.0	2.0	0.0
TRAINING	11.0	0.0	0.0	11.0	0.0
TRANSPORTATION (BUS)	564.0	0.0	0.0	564.0	-20.0
Subtotal Bus Operations	**796.5**	**0.0**	**0.0**	**796.5**	**-20.0**
Rail Operations					
EXECUTIVE (RAIL)	4.0	0.0	0.0	4.0	0.0
FACILITIES	81.0	0.0	0.0	81.0	0.0
LIGHT RAIL VEHICLES	107.0	0.0	0.0	107.0	0.0
MAINTENANCE OF WAYSIDE	46.0	0.0	0.0	46.0	0.0
PASSENGER SUPPORT (RAIL)	22.5	0.0	0.0	22.5	0.0
REVENUE (RAIL)	20.0	0.0	0.0	20.0	-1.0
REVENUE OPERATIONS (RAIL)	13.0	0.0	0.0	13.0	-2.0
TRACK	22.0	0.0	0.0	22.0	0.0
TRANSPORTATION (RAIL)	283.2	0.0	32.8	316.0	-6.0
Subtotal Rail Operations	**598.7**	**0.0**	**32.8**	**631.5**	**-9.0**
Other MTS Operations					
FHV ADMINISTRATION	7.0	0.0	0.0	7.0	0.0
Subtotal Other MTS Operations	**7.0**	**0.0**	**0.0**	**7.0**	**0.0**
Grand Total	**1,747.2**	**0.0**	**32.8**	**1,780.0**	**-30.0**

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
MTS Administration						
BOD ADMINISTRATION						
Exec Asst GC/Asst Board Clrk	8	1.0	0.0	0.0	1.0	0.0
Internal Auditor	12	1.0	0.0	0.0	1.0	0.0
BOD ADMINISTRATION TOTAL		2.0	0.0	0.0	2.0	0.0
CAPITAL PROJECTS						
Director of Capital Projects	17	1.0	0.0	0.0	1.0	0.0
Engineering Intern	0	0.5	0.0	0.0	0.5	0.0
Project Engineer	12	3.0	0.0	0.0	3.0	0.0
Project Manager	13	2.0	0.0	0.0	2.0	0.0
Regulatory Liaison&Permit Asst	7	1.0	0.0	0.0	1.0	0.0
Senior Project Manager	14	3.0	0.0	0.0	3.0	0.0
CAPITAL PROJECTS TOTAL		10.5	0.0	0.0	10.5	0.0
COMPASS CARD						
COMPASS CARD TOTAL		0.0	0.0	0.0	0.0	0.0
EXECUTIVE						
Chief Executive Officer		1.0	0.0	0.0	1.0	0.0
Exec Asst/Clerk of the Board	9	1.0	0.0	0.0	1.0	0.0
Grants Administrator	9	1.0	0.0	0.0	1.0	0.0
Grants Analyst	8	1.0	0.0	0.0	1.0	0.0
Manager of Government Affairs	13	1.0	0.0	0.0	1.0	0.0
EXECUTIVE TOTAL		5.0	0.0	0.0	5.0	0.0
FARE SYSTEM						
Call/Service Center Rep (FT)	1	4.0	0.0	0.0	4.0	0.0
Call/Service Center Rep (PT)	1	1.5	0.0	0.0	1.5	0.0
Director of Fare Technology &	14	1.0	0.0	0.0	1.0	0.0
Fare Systems Administrator	9	1.0	0.0	0.0	1.0	0.0
Mgr of PRONTO & Passenger Supp	9	1.0	0.0	0.0	1.0	0.0
Service Center Specialist (FT)	2	5.0	0.0	0.0	5.0	0.0
Supervisor of Pronto Support	7	1.0	0.0	0.0	1.0	0.0
FARE SYSTEM TOTAL		14.5	0.0	0.0	14.5	0.0
FINANCE						
Chief Financial Officer	20	1.0	0.0	0.0	1.0	0.0
Accounting Assistant	3	3.0	0.0	0.0	3.0	0.0
Accounting Manager	12	1.0	0.0	0.0	1.0	0.0
Accounting Supervisor	9	1.0	0.0	0.0	1.0	0.0
Assistant Controller	13	1.0	0.0	0.0	1.0	0.0
Controller	17	1.0	0.0	0.0	1.0	0.0
Deputy Chief Financial Officer	18	1.0	0.0	0.0	1.0	0.0
Finance Assistant	6	1.0	0.0	0.0	1.0	0.0
Finance Intern	1	0.5	0.0	0.0	0.5	0.0
Financial Analyst	9	1.0	0.0	0.0	1.0	0.0
Manager of Financial Planning	13	1.0	0.0	0.0	1.0	0.0
Payroll Coordinator	7	3.0	0.0	0.0	3.0	0.0
Payroll Manager	12	1.0	0.0	0.0	1.0	0.0
Payroll Supervisor	10	1.0	0.0	0.0	1.0	0.0
Senior Financial Analyst	10	1.0	0.0	0.0	1.0	0.0
Staff Accountant I	7	2.0	0.0	0.0	2.0	0.0
Staff Accountant II	8	4.0	0.0	0.0	4.0	0.0
Transit Asset Mgmt Program Mgr	11	1.0	0.0	0.0	1.0	0.0
FINANCE TOTAL		25.5	0.0	0.0	25.5	0.0

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
POSITION INFORMATION (DETAILED POSITION FORMAT)
FISCAL YEAR 2027 PROPOSED BUDGET
SECTION 10.04

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
HUMAN RESOURCES						
Benefits & Comp Analyst	10	3.0	0.0	0.0	3.0	0.0
Chief Human Resources Officer	19	1.0	0.0	0.0	1.0	0.0
Director of Human Resources	16	1.0	0.0	0.0	1.0	0.0
HR Analyst (Leave & Accom)	10	1.0	0.0	0.0	1.0	0.0
Human Resources Assistant	3	2.0	0.0	0.0	2.0	0.0
Human Resources Specialist	6	2.0	0.0	0.0	2.0	0.0
Leadership Dev Specialist	12	1.0	0.0	0.0	1.0	0.0
Manager of Benefits & Comp	13	1.0	0.0	0.0	1.0	0.0
Manager of Talent Acquisition	13	1.0	0.0	0.0	1.0	0.0
Office Support Coordinator	2	1.0	0.0	0.0	1.0	0.0
Senior Human Resources Analyst	11	1.0	0.0	0.0	1.0	0.0
Talent Acquisition Specialist	10	4.0	0.0	0.0	4.0	0.0
HUMAN RESOURCES TOTAL		19.0	0.0	0.0	19.0	0.0
INFORMATION SECURITY						
Info Security & Intel Eng	12	2.0	0.0	0.0	2.0	0.0
Info Security and Intel Intern	PT	0.5	0.0	0.0	0.5	0.0
Information Security Manager	14	1.0	0.0	0.0	1.0	0.0
INFORMATION SECURITY TOTAL		3.5	0.0	0.0	3.5	0.0
INFORMATION TECHNOLOGY						
Business Systems Analyst (SAP)	13	1.0	0.0	0.0	1.0	0.0
Chief Information Officer	19	1.0	0.0	0.0	1.0	0.0
Executive Assistant (CIO)	8	1.0	0.0	0.0	1.0	0.0
IT Development Manager	14	1.0	0.0	0.0	1.0	0.0
IT Enterprise Architect (IoT)	13	1.0	0.0	0.0	1.0	0.0
IT Operations Manager	14	1.0	0.0	0.0	1.0	0.0
IT Support Specialist	7	4.0	0.0	0.0	4.0	0.0
Network Engineer I	10	2.0	0.0	0.0	2.0	0.0
Network Engineer II	11	2.0	0.0	0.0	2.0	0.0
Network Engineer III	12	1.0	0.0	0.0	1.0	0.0
Network Operations Manager	14	1.0	0.0	0.0	1.0	0.0
Project Administrator	8	1.0	0.0	0.0	1.0	0.0
Report Development Analyst	10	1.0	0.0	0.0	1.0	0.0
SAP Software Developer	13	1.0	0.0	0.0	1.0	0.0
Senior Systems Administrator	12	3.0	0.0	0.0	3.0	0.0
Service Desk Supervisor	10	1.0	0.0	0.0	1.0	0.0
Software Developer	13	3.0	0.0	0.0	3.0	0.0
Sr Database Administrator	13	1.0	0.0	0.0	1.0	0.0
Systems Administrator	11	4.0	0.0	0.0	4.0	0.0
Technical Project Manager	13	1.0	0.0	0.0	1.0	0.0
INFORMATION TECHNOLOGY TOTAL		32.0	0.0	0.0	32.0	0.0
LEGAL						
General Counsel	19	1.0	0.0	0.0	1.0	0.0
Deputy General Counsel	15	1.0	0.0	0.0	1.0	0.0
Env Health & Safety Manager	13	1.0	0.0	0.0	1.0	0.0
Envi Health & Safety Intern	1	0.5	0.0	0.0	0.5	0.0
Staff Attorney	13	1.0	0.0	0.0	1.0	-1.0
LEGAL TOTAL		4.5	0.0	0.0	4.5	-1.0

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
POSITION INFORMATION (DETAILED POSITION FORMAT)
FISCAL YEAR 2027 PROPOSED BUDGET
SECTION 10.04

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
MARKETING						
Dir Marketing & Communications	16	1.0	0.0	0.0	1.0	0.0
Community Engagement Specialis	8	1.0	0.0	0.0	1.0	0.0
Creative Design Manager	11	1.0	0.0	0.0	1.0	0.0
Digital Content Developer	8	1.0	0.0	0.0	1.0	0.0
Graphic Designer	7	2.0	0.0	0.0	2.0	0.0
Marketing Coordinator	3	1.0	0.0	0.0	1.0	0.0
Mgr of Marketing & Communicati	12	1.0	0.0	0.0	1.0	0.0
Multimedia Designer	8	1.0	0.0	0.0	1.0	0.0
Public Relations Specialist	10	1.0	0.0	0.0	1.0	0.0
Social Media Coordinator	3	1.0	0.0	0.0	1.0	0.0
MARKETING TOTAL		11.0	0.0	0.0	11.0	0.0
PLANNING						
Assoc Transportation Planner	8	1.0	0.0	0.0	1.0	0.0
Dir of Planning & Scheduling	15	1.0	0.0	0.0	1.0	0.0
Manager of Scheduling	13	1.0	0.0	0.0	1.0	0.0
Mgr of Planning & Analytics	12	1.0	0.0	0.0	1.0	0.0
Mgr of Planning & Reporting	12	1.0	0.0	0.0	1.0	0.0
Planning Intern	1	0.5	0.0	0.0	0.5	0.0
Senior Scheduler	8	2.0	0.0	0.0	2.0	0.0
Transit Services Data Analyst	8	2.0	0.0	0.0	2.0	0.0
PLANNING TOTAL		9.5	0.0	0.0	9.5	0.0
PROCUREMENT						
Manager of Procurement	13	1.0	0.0	0.0	1.0	0.0
Asst Mgr of Proc - Const	12	1.0	0.0	0.0	1.0	0.0
Asst Mgr of Proc - Non-Const	12	1.0	0.0	0.0	1.0	0.0
Buyer	7	1.0	0.0	0.0	1.0	0.0
Contract Specialist	7	1.0	0.0	0.0	1.0	0.0
Contracts Administrator	9	1.0	0.0	0.0	1.0	0.0
Director of Supply Chain & Ops	15	1.0	0.0	0.0	1.0	0.0
Principal Contract Admin	11	1.0	0.0	0.0	1.0	0.0
Procurement Specialist I	9	3.0	0.0	0.0	3.0	0.0
Procurement Specialist II	10	4.0	0.0	0.0	4.0	0.0
Senior Procurement Specialist	11	1.0	0.0	0.0	1.0	0.0
PROCUREMENT TOTAL		16.0	0.0	0.0	16.0	0.0
RIGHT OF WAY						
Manager of Real Estate Assets	14	1.0	0.0	0.0	1.0	0.0
Right of Way Permit Coord	9	1.0	0.0	0.0	1.0	0.0
RIGHT OF WAY TOTAL		2.0	0.0	0.0	2.0	0.0
RISK						
Claims Specialist	7	1.0	0.0	0.0	1.0	0.0
Liability Claims Supervisor	10	1.0	0.0	0.0	1.0	0.0
Manager of Risk and Claims	13	1.0	0.0	0.0	1.0	0.0
Workers' Compensation Analyst	8	1.0	0.0	0.0	1.0	0.0
RISK TOTAL		4.0	0.0	0.0	4.0	0.0

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
SECURITY						
Asst Mgr of Field Operations	10	1.0	0.0	0.0	1.0	0.0
Clerk Typist/Data Entry TSS	BU	2.0	0.0	0.0	2.0	0.0
Code Compl Insp-Canine Handler	BU	3.0	0.0	0.0	3.0	0.0
Code Compliance Inspector	BU	90.0	0.0	0.0	90.0	0.0
Code Compliance Investigator	10	1.0	0.0	0.0	1.0	0.0
Code Compliance Supervisor	8	20.0	0.0	0.0	20.0	0.0
Code Compliance Train Sup (MC)	9	1.0	0.0	0.0	1.0	0.0
Dep Dir of Transit Sec & Pass	13	1.0	0.0	0.0	1.0	0.0
Dir of Transit Security & Pass	17	1.0	0.0	0.0	1.0	0.0
Dispatch Sup - Transit Enf	8	2.0	0.0	0.0	2.0	0.0
Dispatcher - Transit Enf	BU	10.0	0.0	0.0	10.0	0.0
Mgr of Ops-Transit Sec & Pass	11	1.0	0.0	0.0	1.0	0.0
Operational and Crime Data Ana	8	1.0	0.0	0.0	1.0	0.0
Professional Standards Manager	10	1.0	0.0	0.0	1.0	0.0
Records Manager	10	1.0	0.0	0.0	1.0	0.0
Records Specialist	7	2.0	0.0	0.0	2.0	0.0
Security Systems Administrator	9	1.0	0.0	0.0	1.0	0.0
SECURITY TOTAL		139.0	0.0	0.0	139.0	0.0
STORES (ADMIN)						
Inventory Planning and Forecas	9	1.0	0.0	0.0	1.0	0.0
Manager of Inventory Ops	12	1.0	0.0	0.0	1.0	0.0
STORES (ADMIN) TOTAL		2.0	0.0	0.0	2.0	0.0
STORES (BUS)						
Storeroom Clerks - IAD	BU	6.0	0.0	0.0	6.0	0.0
Storeroom Clerks - KMD	BU	5.0	0.0	0.0	5.0	0.0
Supervisor of Warehouse Ops	8	2.0	0.0	0.0	2.0	0.0
STORES (BUS) TOTAL		13.0	0.0	0.0	13.0	0.0
STORES (RAIL)						
Storekeeper	BU	6.0	0.0	0.0	6.0	0.0
Supervisor of Warehouse Ops	8	1.0	0.0	0.0	1.0	0.0
STORES (RAIL) TOTAL		7.0	0.0	0.0	7.0	0.0
TELEPHONE INFORMATION SERVICES						
Asst Supvr of Info & Trip Plan	7	1.0	0.0	0.0	1.0	0.0
Info & Trip Planning Supvr	8	1.0	0.0	0.0	1.0	0.0
Info and Trip Planning Clerk	BU	15.0	0.0	0.0	15.0	0.0
TELEPHONE INFORMATION SERVICES TC		17.0	0.0	0.0	17.0	0.0
TRANSIT STORES						
Transit Store Supervisor	7	1.0	0.0	0.0	1.0	0.0
Asst Transit Store Supervisor	7	1.0	0.0	0.0	1.0	0.0
Senior Transit Store Clerk	BU	1.0	0.0	0.0	1.0	0.0
Transit Store Clerk	BU	5.0	0.0	0.0	5.0	0.0
TRANSIT STORES TOTAL		8.0	0.0	0.0	8.0	0.0
Subtotal MTS Administration		**345.0**	**0.0**	**0.0**	**345.0**	**-1.0**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
POSITION INFORMATION (DETAILED POSITION FORMAT)
FISCAL YEAR 2027 PROPOSED BUDGET
SECTION 10.04

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
Bus Operations						
CONTRACT SERVICES						
Director of Contract Services	15	1.0	0.0	0.0	1.0	0.0
Contract Operations Administra	6	1.0	0.0	0.0	1.0	0.0
Intern - Transit Services	0	0.5	0.0	0.0	0.5	0.0
Mgr of Paratransit & Minibus	13	1.0	0.0	0.0	1.0	0.0
Passenger Facilities Coord.	2	2.0	0.0	0.0	2.0	0.0
Sr Contract Operations Adminis	9	1.0	0.0	0.0	1.0	0.0
Supervisor of Paratransit	6	1.0	0.0	0.0	1.0	0.0
Supvr of Passenger Facilities	10	1.0	0.0	0.0	1.0	0.0
CONTRACT SERVICES TOTAL		8.5	0.0	0.0	8.5	0.0
EXECUTIVE (BUS)						
Chief Op Officer-Transit Servs	20	1.0	0.0	0.0	1.0	0.0
Executive Assistant (COO Bus)	8	1.0	0.0	0.0	1.0	0.0
EXECUTIVE (BUS) TOTAL		2.0	0.0	0.0	2.0	0.0
MAINTENANCE						
Admin Asst II - Maintenance	3	1.0	0.0	0.0	1.0	0.0
Administrative Assistant - Mai	2	1.0	0.0	0.0	1.0	0.0
Body Shop Apprentice I - KMD	BU	2.0	0.0	0.0	2.0	0.0
Body Shop Apprentice II - KMD	BU	1.0	0.0	0.0	1.0	0.0
Bus Maintenance Trainer	11	1.0	0.0	0.0	1.0	0.0
Communications Tech - IAD	BU	2.0	0.0	0.0	2.0	0.0
Dir of Fleet & Facility Maint	16	1.0	0.0	0.0	1.0	0.0
Division Manager (Maint) - IAD	13	1.0	0.0	0.0	1.0	0.0
Division Manager (Maint) - KMD	13	1.0	0.0	0.0	1.0	0.0
Electronics Apprentice I - IAD	BU	2.0	0.0	0.0	2.0	0.0
Foreman - IAD	11	12.0	0.0	0.0	12.0	0.0
Foreman - KMD	11	4.0	0.0	0.0	4.0	0.0
Maintenance Analyst	7	1.0	0.0	0.0	1.0	0.0
Mechanic A - IAD	BU	23.0	0.0	0.0	23.0	0.0
Mechanic A - KMD	BU	30.0	0.0	0.0	30.0	0.0
Mechanic Apprentice I - IAD	BU	6.0	0.0	0.0	6.0	0.0
Mechanic Apprentice I - KMD	BU	8.0	0.0	0.0	8.0	0.0
Mechanic Apprentice II - IAD	BU	3.0	0.0	0.0	3.0	0.0
Mechanic Apprentice II - KMD	BU	1.0	0.0	0.0	1.0	0.0
Mechanic C - IAD	BU	15.0	0.0	0.0	15.0	0.0
Mechanic C - KMD	BU	8.0	0.0	0.0	8.0	0.0
Quality Assurance Inspector	10	1.0	0.0	0.0	1.0	0.0
Quality Assurance Supervisor	11	1.0	0.0	0.0	1.0	0.0
Servicer A - IAD	BU	51.0	0.0	0.0	51.0	0.0
Servicer A - KMD	BU	9.0	0.0	0.0	9.0	0.0
Sign Truck Operator	BU	1.0	0.0	0.0	1.0	0.0
Sup of Maintenance Training	12	1.0	0.0	0.0	1.0	0.0
ZEV and Sustainability Manager	13	1.0	0.0	0.0	1.0	0.0
MAINTENANCE TOTAL		189.0	0.0	0.0	189.0	0.0

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
MAINTENANCE-FACILITY						
Bldng Maint Apprentice - IAD	BU	1.0	0.0	0.0	1.0	0.0
Facilities Supervisor - Bus	7	1.0	0.0	0.0	1.0	0.0
Mechanic A - Facilities - IAD	BU	2.0	0.0	0.0	2.0	0.0
Mechanic A - Facilities - KMD	BU	1.0	0.0	0.0	1.0	0.0
MAINTENANCE-FACILITY TOTAL		5.0	0.0	0.0	5.0	0.0
PASSENGER SERVICES						
Customer Service Supervisor	6	2.0	0.0	0.0	2.0	0.0
Asst Passenger Support Sup	5	1.0	0.0	0.0	1.0	0.0
Director of Support Services	14	1.0	0.0	0.0	1.0	0.0
Operations Asst - Ride Checker	0	1.0	0.0	0.0	1.0	0.0
Passenger Support Supervisor	7	1.0	0.0	0.0	1.0	0.0
Support Services Analyst	6	1.0	0.0	0.0	1.0	0.0
Support Services Coordinator	2	2.0	0.0	0.0	2.0	0.0
PASSENGER SERVICES TOTAL		9.0	0.0	0.0	9.0	0.0
REVENUE (BUS)						
Asst Rev Technicians - IAD	BU	1.0	0.0	0.0	1.0	0.0
Asst Rev Technicians - KMD	BU	3.0	0.0	0.0	3.0	0.0
Revenue Technicians - IAD	BU	1.0	0.0	0.0	1.0	0.0
Revenue Technicians - KMD	BU	1.0	0.0	0.0	1.0	0.0
REVENUE (BUS) TOTAL		6.0	0.0	0.0	6.0	0.0
SAFETY						
Manager of Safety (Bus)	13	1.0	0.0	0.0	1.0	0.0
Transit Safety Specialist	9	1.0	0.0	0.0	1.0	0.0
SAFETY TOTAL		2.0	0.0	0.0	2.0	0.0
TRAINING						
Bus Op Training Instructor	8	8.0	0.0	0.0	8.0	0.0
Manager of Training (Transp)	11	1.0	0.0	0.0	1.0	0.0
Training Administrator	5	1.0	0.0	0.0	1.0	0.0
Training Development Specialis	8	1.0	0.0	0.0	1.0	0.0
TRAINING TOTAL		11.0	0.0	0.0	11.0	0.0
TRANSPORTATION (BUS)						
Director of Transportation	17	1.0	0.0	0.0	1.0	0.0
Admin Asst II - Operations	3	1.0	0.0	0.0	1.0	0.0
Bus Operators - F/T	BU	520.0	0.0	0.0	520.0	-20.0
Comm/Ops Supv-Dispatch IAD	10	8.0	0.0	0.0	8.0	0.0
Comm/Ops Supv-Radio	10	8.0	0.0	0.0	8.0	0.0
Dispatch Clerk	BU	4.0	0.0	0.0	4.0	0.0
Dispatch Clerk - KMD	BU	2.0	0.0	0.0	2.0	0.0
Manager of Service Operations	12	1.0	0.0	0.0	1.0	0.0
Manager of Transportation Tech	11	1.0	0.0	0.0	1.0	0.0
Service Operations Supervisor	10	14.0	0.0	0.0	14.0	0.0
Trans Div Manager - IAD	13	1.0	0.0	0.0	1.0	0.0
Trans Div Manager - KMD	13	1.0	0.0	0.0	1.0	0.0
Transp Comm & Technology Supvr	11	1.0	0.0	0.0	1.0	0.0
Transp Service Quality Spec	7	1.0	0.0	0.0	1.0	0.0
TRANSPORTATION (BUS) TOTAL		564.0	0.0	0.0	564.0	-20.0
Subtotal Bus Operations		**796.5**	**0.0**	**0.0**	**796.5**	**-20.0**

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
Rail Operations						
EXECUTIVE (RAIL)						
Chief Operating Officer (Rail)	20	1.0	0.0	0.0	1.0	0.0
Manager of Special Operations	12	1.0	0.0	0.0	1.0	0.0
System Safety Manager (Rail)	13	1.0	0.0	0.0	1.0	0.0
System Safety Specialist	10	1.0	0.0	0.0	1.0	0.0
EXECUTIVE (RAIL) TOTAL		4.0	0.0	0.0	4.0	0.0
FACILITIES						
Admin Asst II - Facilities	3	1.0	0.0	0.0	1.0	0.0
Director of Rail Facilities	16	1.0	0.0	0.0	1.0	0.0
Facilities Supervisor	7	6.0	0.0	0.0	6.0	0.0
Manager of Rail Facilities	11	1.0	0.0	0.0	1.0	0.0
Serviceperson	BU	72.0	0.0	0.0	72.0	0.0
FACILITIES TOTAL		81.0	0.0	0.0	81.0	0.0
LIGHT RAIL VEHICLES						
Assistant Training Sup - LRV	11	1.0	0.0	0.0	1.0	0.0
Clerk Typist/Data Entry LRV	BU	2.0	0.0	0.0	2.0	0.0
Director of LRV Maintenance	16	1.0	0.0	0.0	1.0	0.0
LRV Asst Lineman	BU	39.0	0.0	0.0	39.0	0.0
LRV Electromechanic	BU	42.0	0.0	0.0	42.0	0.0
LRV Lineman	BU	8.0	0.0	0.0	8.0	0.0
LRV Maint Supervisor	11	10.0	0.0	0.0	10.0	0.0
LRV Project Cordinator/Analyst	10	1.0	0.0	0.0	1.0	0.0
Maintenance Analyst (LRV)	6	1.0	0.0	0.0	1.0	0.0
Manager of LRV Maintenance	13	1.0	0.0	0.0	1.0	0.0
Training Supervisor - LRV	12	1.0	0.0	0.0	1.0	0.0
LIGHT RAIL VEHICLES TOTAL		107.0	0.0	0.0	107.0	0.0
MAINTENANCE OF WAYSIDE						
Asst Training Supervisor - MOW	11	1.0	0.0	0.0	1.0	0.0
Director of MOW	16	1.0	0.0	0.0	1.0	0.0
Manager of MOW	13	1.0	0.0	0.0	1.0	0.0
MOW Contracts & Budget Analyst	9	1.0	0.0	0.0	1.0	0.0
Training Supervisor - MOW	12	1.0	0.0	0.0	1.0	0.0
Wayside Assistant Lineman	BU	13.0	0.0	0.0	13.0	0.0
Wayside Electromechanic	BU	15.0	0.0	0.0	15.0	0.0
Wayside Lineman	BU	8.0	0.0	0.0	8.0	0.0
Wayside Maintenance Supervisor	11	5.0	0.0	0.0	5.0	0.0
MAINTENANCE OF WAYSIDE TOTAL		46.0	0.0	0.0	46.0	0.0
PASSENGER SUPPORT (RAIL)						
Lead Passenger Support Rep	2	1.5	0.0	0.0	1.5	0.0
Passenger Support Rep	1	21.0	0.0	0.0	21.0	0.0
PASSENGER SUPPORT (RAIL) TOTAL		22.5	0.0	0.0	22.5	0.0

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
POSITION INFORMATION (DETAILED POSITION FORMAT)
FISCAL YEAR 2027 PROPOSED BUDGET
SECTION 10.04

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
REVENUE (RAIL)						
Lead Revenue Maint Supervisor	12	1.0	0.0	0.0	1.0	0.0
Revenue Maintainer I	BU	4.0	0.0	0.0	4.0	-1.0
Revenue Maintainer II	BU	2.0	0.0	0.0	2.0	0.0
Revenue Maintainer III	BU	12.0	0.0	0.0	12.0	0.0
Revenue Maintenance Supervisor	11	1.0	0.0	0.0	1.0	0.0
REVENUE (RAIL) TOTAL		20.0	0.0	0.0	20.0	-1.0
REVENUE OPERATIONS (RAIL)						
Collector / Processor	BU	8.0	0.0	0.0	8.0	-2.0
Revenue Analyst (Rail)	7	1.0	0.0	0.0	1.0	0.0
Revenue Operations Assistant	1	1.0	0.0	0.0	1.0	0.0
Revenue Operations Manager	10	1.0	0.0	0.0	1.0	0.0
Ridership Surveyor	BU	2.0	0.0	0.0	2.0	0.0
REVENUE OPERATIONS (RAIL) TOTAL		13.0	0.0	0.0	13.0	-2.0
TRACK						
Manager of Track and Structure	12	1.0	0.0	0.0	1.0	0.0
Track Supervisor	11	2.0	0.0	0.0	2.0	0.0
Trackperson	BU	16.0	0.0	0.0	16.0	0.0
Trackperson Equip Op	BU	3.0	0.0	0.0	3.0	0.0
TRACK TOTAL		22.0	0.0	0.0	22.0	0.0
TRANSPORTATION (RAIL)						
Assignments Supervisor	10	5.0	0.0	0.0	5.0	0.0
Central Control Info Rep	7	1.0	0.0	0.0	1.0	0.0
Central Control Supervisor	11	2.0	0.0	0.0	2.0	0.0
Construction Safety Flagperson	PT	43.5	0.0	32.8	76.3	0.0
Construction Safety Supervisor	7	4.0	0.0	0.0	4.0	0.0
Dir of Rail Transportation	17	1.0	0.0	0.0	1.0	0.0
Lead Training Supervisor	11	1.0	0.0	0.0	1.0	0.0
Lead Transportation Sup	11	1.0	0.0	0.0	1.0	0.0
Manager of Rail Transportation	13	1.0	0.0	0.0	1.0	0.0
Train Operator	BU	137.0	0.0	0.0	137.0	-6.0
Train Operator - PT	BU	52.7	0.0	0.0	52.7	0.0
Training Supervisor - Trans	11	2.0	0.0	0.0	2.0	0.0
Transportation Controller	10	16.0	0.0	0.0	16.0	0.0
Transportation Supervisor	10	16.0	0.0	0.0	16.0	0.0
TRANSPORTATION (RAIL) TOTAL		283.2	0.0	32.8	316.0	-6.0
Subtotal Rail Operations		**598.7**	**0.0**	**32.8**	**631.5**	**-9.0**

	Salary Grade	Amended Budget FY 2026 (FTE's)	Position Shifts (FTE's)	Net Positons Requiring Funding Adjs (FTE's)	Proposed FY 2027 (FTE's)	Frozen Positions (FTE's)
Other MTS Operations						
FHV ADMINISTRATION						
For-Hire Vehicle Administratio	11	1.0	0.0	0.0	1.0	0.0
Regulatory Analyst	7	1.0	0.0	0.0	1.0	0.0
Regulatory Assistant	7	1.0	0.0	0.0	1.0	0.0
Regulatory Inspector	3	3.0	0.0	0.0	3.0	0.0
Regulatory Supervisor	8	1.0	0.0	0.0	1.0	0.0
FHV ADMINISTRATION TOTAL		7.0	0.0	0.0	7.0	0.0
Subtotal Other MTS Operations		**7.0**	**0.0**	**0.0**	**7.0**	**0.0**
Grand Total		**1,747.2**	**0.0**	**32.8**	**1,780.0**	**-30.0**

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
SALARY GRADE RANGES
PROPOSED FISCAL YEAR 2027 BUDGET
SECTION 10.05

Range	FTE Count	Minimum	Midpoint	Maximum
BU	1,353.0	Bargaining Unit Position, Not Applicable		
00	2.5	$ 37,908	$ 45,869	$ 53,829
01	29.0	$ 46,414	$ 56,162	$ 65,909
02	12.5	$ 48,735	$ 58,970	$ 69,204
03	13.0	$ 51,172	$ 61,918	$ 72,664
04	-	$ 53,731	$ 65,014	$ 76,297
05	2.0	$ 57,492	$ 69,565	$ 81,638
06	9.0	$ 61,516	$ 74,435	$ 87,353
07	39.0	$ 65,822	$ 79,645	$ 93,468
08	55.0	$ 71,746	$ 86,813	$ 101,880
09	17.0	$ 78,203	$ 94,626	$ 111,049
10	96.0	$ 85,242	$ 103,142	$ 121,043
11	61.0	$ 94,618	$ 114,488	$ 134,358
12	26.0	$ 105,026	$ 127,082	$ 149,137
13	32.0	$ 116,579	$ 141,061	$ 165,542
14	10.0	$ 129,403	$ 156,578	$ 183,752
15	4.0	$ 143,637	$ 173,801	$ 203,965
16	6.0	$ 159,437	$ 192,919	$ 226,401
17	5.0	$ 176,975	$ 214,140	$ 251,305
18	1.0	$ 196,443	$ 237,696	$ 278,949
19	3.0	$ 218,051	$ 263,842	$ 309,633
20	3.0	$ 242,037	$ 292,865	$ 343,693

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
RESERVE BALANCES
AS OF JUNE 30, 2025
SECTION 10.06

Title	Amount	Explanation
Contingency	$ 51,700,530	For ongoing operations, future matching of grants; target is 12.5% of operating budget per Policy 36
Operating Deficit	$ 67,607,783	For balancing structural deficits in operating budget
FHV Administration	1,044,100	For ongoing operations and future capital improvement needs
SD&AE	1,518,548	Established from 1984 state payments for storm damage, restriced for repair/improvement of line
Insurance	7,500,000	Established for potential future liability claims, minimum $2 million per Policy 46
Billboard San Diego	651,880	Per agreement with city, used for improvements to right of way
Billboard Chula Vista	3,326,724	Per agreement with city, used for improvements to right of way
Total	**$ 133,349,565**	

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San Diego Metropolitan Transit System
Authorizing Resolution
Budget Fiscal Year 2027

Resolution Number 26-08

Resolution Approving the Fiscal Year 2027 Budget

WHEREAS, San Diego Metropolitan Transit System (MTS) staff has coordinated with the staff of San Diego Transit Corporation (SDTC), San Diego Trolley, Inc. (SDTI), San Diego & Arizona Eastern Railway Co. (SDAE), MTS Contract Services, and Coronado Ferry (hereafter collectively referred to as MTS Operators) throughout the budget preparation process to ensure consistent budget assumptions; and

WHEREAS, the budgets have been prepared using the budget assumptions approved by the MTS Board of Directors;

NOW THEREFORE, BE IT RESOLVED, by the MTS Board of Directors, hereinafter "Board," as follows:

1. That the Budget for fiscal year (FY) 2027, on file with the Clerk of the Board, is hereby adopted (including MTS, SDTC, SDTI, SDAE, MTS Contract Services, and Coronado Ferry); and

2. That the Chief Executive Officer (CEO) is authorized to transfer appropriate amounts up to $500,000 between object accounts, so long as the total amount authorized to be spent for an object account by the FY 2027 Budget is not exceeded by more than $500,000, the total amount authorized to be spent by the FY 2027 Budget is not exceeded, and all such transfers are reported to the Board in the monthly Budget Monitoring Report; and

3. That the CEO is authorized to approve expenditures up to a maximum of $150,000; and

4. That the check-signing authority on behalf of the Board shall be governed by MTS Policy No. 41, Signature Authority; and

5. That the MTS Budget establishes absolute spending limits, and that the budgeted expenditures cannot be exceeded without prior written approval of the Board; and

6. That any budget variances will be reported to the Board; and

7. That MTS is authorized to withhold monthly subsidy payments to those operators who do not provide the information according to an established schedule; and

8. That the salary grade ranges and position schedules of MTS, SDTC and SDTI as contained in the FY 2027 budget Section 10 are approved.

PASSED AND ADOPTED, by the Board this 18th day of June 2026, by the following vote:

AYES:

NAYES:

ABSENT:

ABSTAINING:

Chairperson
San Diego Metropolitan Transit System

Filed by:

Clerk of the Board
San Diego Metropolitan Transit System

Approved as to form:

Office of the General Counsel
San Diego Metropolitan Transit System

Metropolitan Transit System

FY 2027 Operating Budget Overview

Board of Directors

Fiscal Year 2027 Operating Budget Overview

- Final draft budget being presented today
- Changes from preliminary draft presented in May
  - Flagging wages increasing due to increase in FTEs
  - Offset by increase in flagging cost recovery
  - Removed fare increase based on June 11th budget workshop
- Summary of revenue assumptions
- Final expense assumptions
  - Position table changes
  - Salary grades
- 5-year forecast

Fiscal Year 2027 Operating Budget
Revenue Assumptions

- Major Revenue Assumptions
  - Operating revenues projected at $116.5M (1.9% increase)
    - Passenger revenue projected at $83.0M based on average fare of $1.00 and ridership of 83.1M passengers
    - Other operating revenue increasing $12K (0.0%) to $33.4M in total (energy credits ↑, advertising ↑, interest ↓)
  - Subsidy Revenue projected at $366.1M (26.8% increase)
    - Federal revenues increasing $6.2M due to increasing preventive maintenance allocation
    - TDA increasing $26.7M (25.0%) – 1.0% regional growth assumption, shifting $25M more from capital ($50M in total)
    - TransNet formula funds increasing $1.3M (3.0%) – 2.1% regional growth assumption
    - TransNet operating reimbursement projected at $39.4M based on projected net expenses
    - STA projected at $30.1M for both capital and operations, $11.3M in operating budget
    - SB125 TIRCP reimbursement projected at $52.3M
      - $42.6M for structural deficit balancing
    - Other subsidy decreasing $2M – FasTrak revenue decreasing (swap with TransNet)

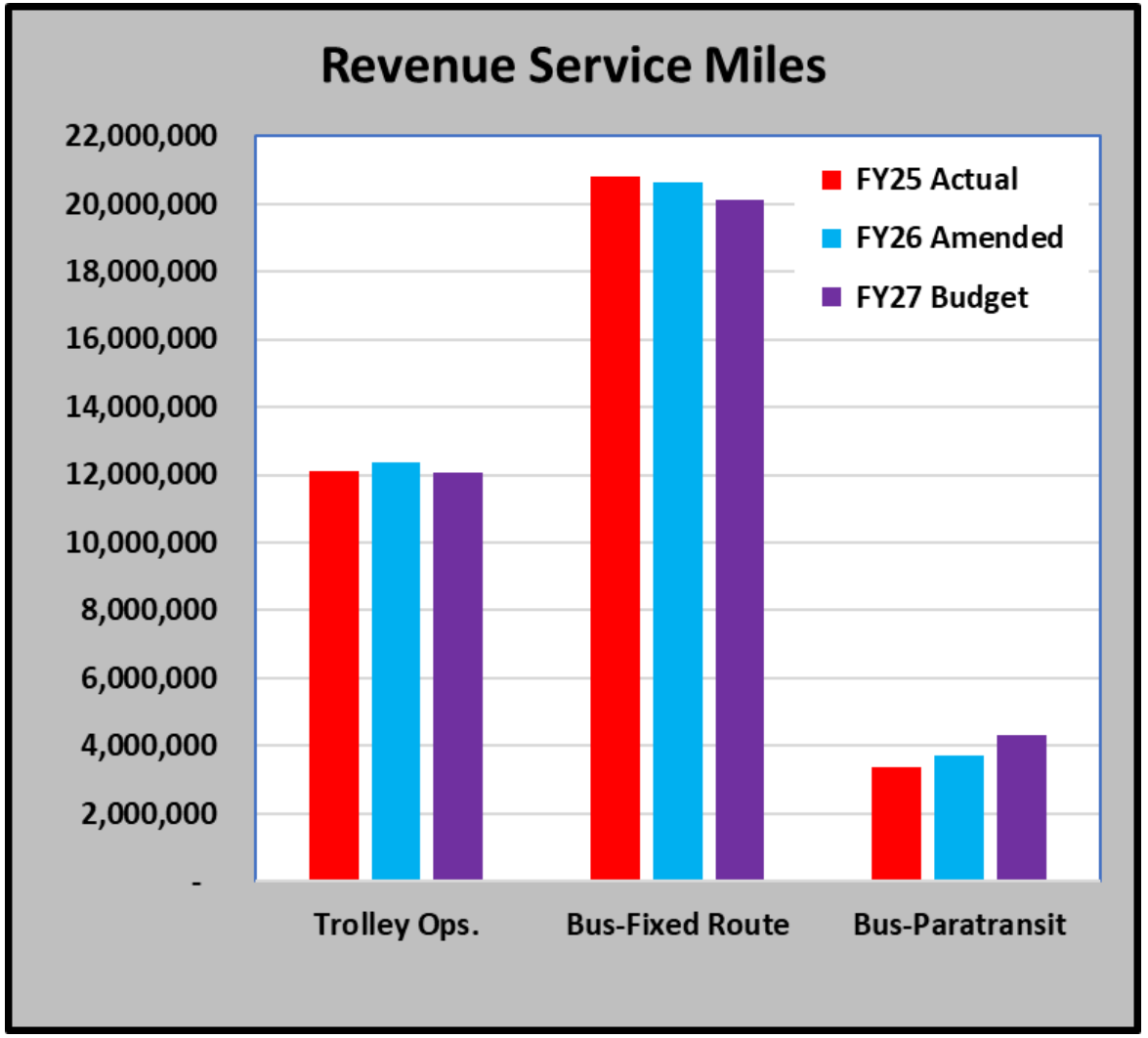
Fiscal Year 2027 Operating Budget
Revenue Summary ($000s)

	FY 2026 Amended	FY 2027 Proposed	Var.	Var. %
Passenger Revenue	$ 80,820	$ 83,014	$ 2,194	2.7%
Other Operating Revenue	33,478	33,490	12	0.0%
Total Operating Revenue	**$ 114,298**	**$ 116,504**	**$ 2,206**	**1.9%**
Federal	$ 79,321	$ 85,453	$ 6,133	7.7%
TDA	106,729	133,432	26,703	25.0%
TransNet Formula	41,859	43,109	1,250	3.0%
TransNet Operating	34,884	39,399	4,515	12.9%
STA	9,338	11,300	1,962	21.0%
SB 125 TIRCP	13,535	52,264	38,729	286.1%
Other	3,120	1,120	(2,000)	-64.1%
Total Subsidy	**$ 288,785**	**$ 366,078**	**$ 77,293**	**26.8%**
Reserves	$ 67,981	$ (83)	$ (68,064)	-
Total Revenue	**$ 471,065**	**$ 482,500**	**$ 11,435**	**2.4%**

- **Reserves include Operating Deficit Reserve as well as reserves for SD&AE and FHV Administration**

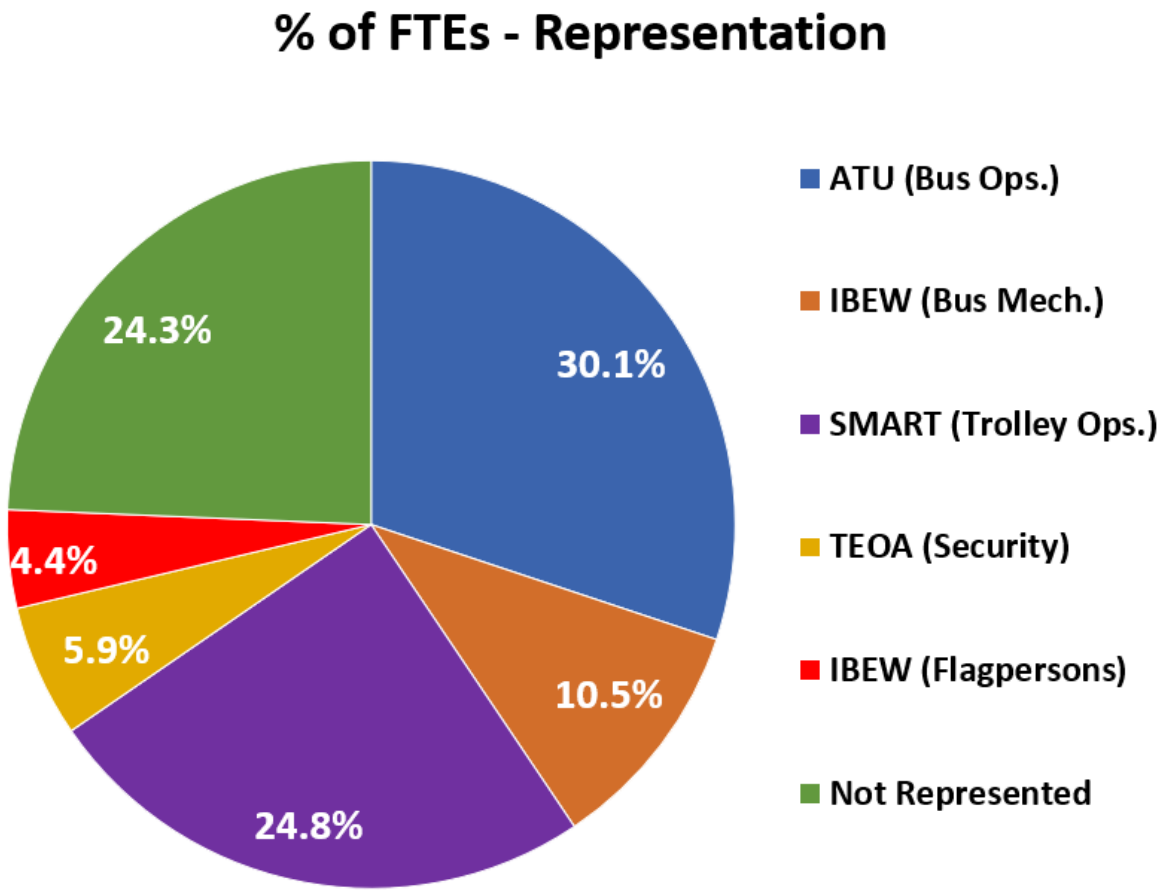
Fiscal Year 2027 Operating Budget
Service Levels

- Service Level Assumptions:
  - Rail:
    - Decreasing -2.6% from FY 2026 budget
    - Two car trains during non-peak times
  - Bus-Fixed Route:
    - Decreasing -2.4% based on January service levels and additional changes planned for June service change
  - Bus-Paratransit:
    - Demand based service
    - 15.3% projected increase in revenue miles
    - 9.1% in billable revenue hours



Fiscal Year 2027 Operating Budget
Expense Assumptions – Personnel

- Personnel Costs
- Position Table Changes
  - Requesting additional 32.8 FTEs for Construction Safety Flag-persons
    - Addition of 20 positions (8 full-time and 12 part-time)
    - Updating FTE assumption for Construction Safety Flag-persons from 0.5 to 0.75 based on current hours data
    - New positions will support Orange Line Renovation Project and will primarily be reimbursed through CIP project
  - 1,780.0 FTEs in total for FY 2027
    - 30 positions frozen during FY 2026
    - 1,750.0 active FTEs budgeted



Fiscal Year 2027 Operating Budget
Expense Assumptions – Personnel

- Gov't Code Sec. 54953
- Prior to taking final action, the legislative body shall orally report a summary of a recommendation for a final action on the salaries, salary schedules, or compensation paid during the open meeting in which the final action is to be taken
- Final Wage Assumptions:
  - Represented employees:
    - ATU – 4.0% increase
    - IBEW Bus – 4.0% increase
    - SMART – 4.0% increase
    - TEOA – 4.0% increase
    - IBEW Flag-persons – 4.0% increase
  - Non-represented employees:
    - 4.0% pool for use at the CEO's discretion
    - Salary Grades (table to the right) also increased by the 4.0% pool amount

Proposed			
Range	**Minimum**	**Midpoint**	**Maximum**
0	$ 37,908	$ 45,869	$ 53,829
1	$ 46,414	$ 56,162	$ 65,909
2	$ 48,735	$ 58,970	$ 69,204
3	$ 51,172	$ 61,918	$ 72,664
4	$ 53,731	$ 65,014	$ 76,297
5	$ 57,492	$ 69,565	$ 81,638
6	$ 61,516	$ 74,435	$ 87,353
7	$ 65,822	$ 79,645	$ 93,468
8	$ 71,746	$ 86,813	$ 101,880
9	$ 78,203	$ 94,626	$ 111,049
10	$ 85,242	$ 103,142	$ 121,043
11	$ 94,618	$ 114,488	$ 134,358
12	$ 105,026	$ 127,082	$ 149,137
13	$ 116,579	$ 141,061	$ 165,542
14	$ 129,403	$ 156,578	$ 183,752
15	$ 143,637	$ 173,801	$ 203,965
16	$ 159,437	$ 192,919	$ 226,401
17	$ 176,975	$ 214,140	$ 251,305
18	$ 196,443	$ 237,696	$ 278,949
19	$ 218,051	$ 263,842	$ 309,633
20	$ 242,037	$ 292,865	$ 343,693

Fiscal Year 2027 Operating Budget
Expense Assumptions – Personnel

- Personnel Costs
  - Wages increasing $5.4M (4.4%)
  - Fringe benefits decreasing 416K (-0.5%)
    - Pension costs are decreasing due to amortization change for SDTC defined benefit plan (no change to employee benefits) approved by Board in February 2026
  - Total personnel costs increasing $4.9M (2.4%)

Category ($000s)	FY 2026 Amended	FY 2027 Proposed	Var.	Var. %
Wages	$ 121,426	$ 126,790	$ 5,364	4.4%
Pension	$ 34,273	$ 30,619	$ (3,654)	-10.7%
Healthcare	$ 21,090	$ 22,917	$ 1,827	8.7%
Paid Absences	$ 15,546	$ 16,463	$ 917	5.9%
Worker's Compensation	$ 5,405	$ 5,981	$ 576	10.7%
Other	$ 5,054	$ 4,972	$ (82)	-1.6%
Total	**$ 202,793**	**$ 207,741**	**$ 4,948**	**2.4%**

Fiscal Year 2027 Operating Budget
Expenses Summary ($000s)

	FY 2026 Amended	FY 2027 Proposed	Var.	Var. %
Personnel Expenses	$ 202,793	$ 207,741	$ 4,948	2.4%
Purchased Transportation	111,608	114,927	3,320	3.0%
Outside Services	61,091	59,717	(1,374)	-2.2%
Materials and Supplies	21,334	21,940	606	2.8%
Energy	50,990	52,613	1,623	3.2%
Risk Management	13,599	15,729	2,130	15.7%
Other	9,650	9,832	182	1.9%
Total Expenses	**$ 471,065**	**$ 482,500**	**$ 11,435**	**2.4%**

Fiscal Year 2027 Operating Budget
Consolidated Revenues less Expenses ($000s)

	FY 2026 Amended	FY 2027 Proposed	Var.	Var. %
Operating Revenues	$ 114,298	$ 116,504	$ 2,206	1.9%
Recurring Subsidy	250,250	263,814	13,563	5.4%
Total Recurring Revenues	**$ 364,549**	**$ 380,318**	**$ 15,769**	**4.3%**
Total Expenses	**471,065**	**482,500**	**$ 11,435**	**2.4%**
Structural Deficit	**$ (106,516)**	**$ (102,182)**	**$ 4,335**	**4.1%**
Reserves	67,981	(83)	(68,064)	-100.1%
Shift TDA from Capital	25,000	50,000	25,000	100.0%
SB-125 Funding	13,535	52,264	38,729	286.1%
Revenues Less Expenses	**$ -**	**$ -**	**$ -**	

- Structural deficit of $102.2M projected for FY 2027
- SB125 funding is balancing mechanism until depleted

Fiscal Year 2027 Operating Budget
5-year Forecast

- Major Themes
  - Revenue Assumptions
    - Passenger revenue growth averages 2.0% from FY 2028 through FY 2031 (no fare increases assumed)
    - Other operating revenue declines on average due to declining interest revenue
    - Federal revenue remains flat
    - Sales tax revenue projections from SANDAG for (TDA grows at 2.1%, TransNet at 3.3%)
    - Reflects $50M shifted from capital to operations every year
    - SB 125 TIRCP funding used to balance until funds are exhausted
  - Expense Assumptions
    - Service levels remain at current levels
    - Continued recovery of ADA paratransit volumes
    - Beginning in FY28, inflation returns to more historical norms (2.8% – 3.0%)
    - Wage and benefit growth assumed to be 4.0% per year
    - Overall average expense growth ranges from 2.7% to 4.1%

Fiscal Year 2027 Operating Budget
5-year Forecast ($000s)

	FY 2027 Budget	FY 2028 Projected	FY 2029 Projected	FY 2030 Projected	FY 2031 Projected
Operating Revenues	$ 116,504	$ 116,854	$ 118,176	$ 120,197	$ 122,452
Recurring Subsidy	263,814	269,435	275,145	280,867	286,603
Total Recurring Revenues	**$ 380,318**	**$ 386,289**	**$ 393,321**	**$ 401,065**	**$ 409,054**
Total Expenses	**482,500**	**495,462**	**513,736**	**534,375**	**556,303**
Structural Deficit	**$ (102,182)**	**$ (109,173)**	**$ (120,415)**	**$ (133,310)**	**$ (147,249)**
Reserves	(83)	68	134	173	205
Shift from Capital to Ops	50,000	50,000	50,000	50,000	50,000
SB-125 Funding	52,264	59,105	70,281	2,606	-
Revenues Less Expenses	**$ -**	**$ -**	**$ -**	**$ (80,532)**	**$ (97,044)**

- Based on this draft of FY 2027 proposed budget and preliminary economic factor assumptions
- No fare increases reflected
- No further headcount changes or service reductions assumed in out-years for this forecast

Staff Recommendation

That the MTS Board of Directors:

1) Receive testimony, review, and comment on the FY 2027 MTS Operating Budget at a public hearing; and

2) Enact Resolution 26-08 (in substantially the same format as Attachment B) adopting the FY 2027 operating budget for the MTS, San Diego Transit Corporation (SDTC), San Diego Trolley (SDTI), San Diego & Arizona Eastern Railway Co. (SDAE), MTS Contract Services, and the Coronado Ferry

Metropolitan Transit System

Agenda Item No. 21

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Annual Safety Performance Review and Approval of Updated Agency Safety Plan (Fabeann Soberg and Jared Garcia)

RECOMMENDATION:

That the San Diego Metropolitan Transit System (MTS) Board of Directors approve updates to the Public Transportation Agency Safety Plan (PTASP) (in substantially the same format as Attachment A).

Budget Impact

None

DISCUSSION:

On July 19, 2018, the Federal Transit Administration (FTA) published Final Rule (49 CFR Part 673), which requires public transportation agencies who receive Federal funding to establish and implement a comprehensive PTASP. Public transportation agencies were required to complete the PTASP by July 20, 2021. On July 30, 2020 (Agenda Item (AI) 26), the MTS Board of Directors approved the MTS Agency Safety Plan, which is separated into three parts: Overall Agency Safety Plan, Bus Safety Plan, and Rail Safety Plan.

On November 15, 2021, President Biden signed into law the Bipartisan Infrastructure Law. The Bipartisan Infrastructure Law amended FTA's safety program at 49 U.S.C. § 5329(d) which revised the PTASP requirements.

On April 9, 2024, the FTA published an updated version of the PTASP regulation. New requirements include:

- Seven (7) additional performance measures:
  - Collision Rate
  - Pedestrian Collision Rate
  - Vehicular Collision Rate
  - Transit Worker Fatality Rate
  - Transit Worker Injury Rate
  - Assaults on Transit Workers
  - Rate of Assaults on Transit Workers

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

- Procedures addressing safety committee structure, pay, operation, and dispute resolution; and
- Adoption of a risk reduction program addressing transit worker assaults.

The FTA Final Rule requires transit agencies to review the PTASP and corresponding safety performance annually. In addition, updates to the PTASP must be approved by the Board of Directors.

Staff will provide an annual update to the Board on safety performance, as required by the PTASP regulations.

The MTS PTASP plans have been updated to comply with the new requirements. (See Attachments A.) The updates include the following category of changes:

1. Updated Rail Safety Plan include changes to Roadway Worker Protection Program required by 49 CFR Part 671, addition of maintenance tunnel inspection program, addition to the process for notifying, investigating, and reporting security breaches, and updates to the Safety Performance Measures and Targets.

2. Updated Bus Safety Plan include changes to Risk Reduction Programs that include the measures taken to reduce visibility impairments for bus operators that contribute to accidents, including retrofits to buses in revenue service.

Therefore, staff recommends that the Board approve updates to the PTASP in substantially the same format as Attachment A.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachment: A. Agency Safety Plan

Metropolitan Transit System

2026

Agency Safety Plan

(Public Transportation Agency Plan persuant to 49 CFR 673)

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
SAN DIEGO TROLLEY, INC.
SAN DIEGO TRANSIT CORP.





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III. Infectious Disease Preparedness and Response Plan (COVID-19 Prevention Program) 12

MTS Agency Safety Plan
Approvals

The approvals for the 2026 MTS Agency Safety Plan are as follows:

I. Approval by the Accountable Executive for the MTS Agency:

_____ _____
Sharon Cooney Date
Chief Executive Officer
San Diego Metropolitan Transit System

II. Approval by the MTS Board of Directors:

_____ _____
Stephen Whitburn Date
Chair of the Board of Directors
San Diego Metropolitan Transit System

MTS Agency Safety Plan
Overview

On July 19, 2018, Federal Transit Administration (FTA) published the Public Transportation Agency Safety Plan (PTASP) Final Rule (49 C.F.R. Part 673), which requires certain operators of public transportation systems that receive Federal financial assistance (49 U.S.C. § 5307) to develop a PTASP.

The PTASP Final Rule intends to improve public transportation safety by implementing an approach that provides an effective and proactive way to manage safety risks. Transit agencies must develop and implement safety plans that establish processes and procedures to the support the implementation of Safety Management System (SMS). SMS is a comprehensive, collaborative approach to managing safety and addressing safety risks.

Specifically, the PTASP Final Rule requires the following minimum standards to be included in safety plans: the identification, assessment, and mitigation of risks and strategies to minimize exposure to hazards, a safety training program, safety performance targets, and a process and timeline for conducting an annual review and update of the safety plan.

The following MTS Agency Safety Plan has been developed to comply with the PTASP Final Rule.

MTS Agency Safety Plan
SMS Policy Statement

The San Diego Metropolitan Transit System (MTS) has established this SMS Policy Statement to emphasize its overall commitment to the safety of our passengers, our operators, our staff and the general public. This SMS Policy Statement provides direction for MTS's safety program, which applies to every facet of MTS operations.

The management of safety is MTS's highest priority. MTS is committed to safety throughout the entire organization, from the Board of Directors to the front line employees.

MTS will ensure that all transit service delivery activities take place under a balanced allocation of organizational resources to achieve the highest level of safety performance and meeting established standards. MTS is committed to developing, implementing, maintaining, and constantly improving our processes. As evidence of our commitment to safety, every MTS policy shall be guided by and every employee shall perform their duties in furtherance of the following safety goals:

- Supporting safety through the provision of appropriate resources that fosters a safety culture
- Integrating the management of safety among the primary responsibilities of all managers and employees;
- Clearly defining managers and employees' responsibilities in relation to the performance of our SMS;
- Conducting hazard identification and evaluating safety risks, which includes an employee safety reporting program, in order to eliminate or mitigate safety risks;
- Ensuring that no action will be taken against any employee who discloses a safety concern through the employee safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;
- Complying with, and wherever possible exceeding, legislative and regulatory requirements and standards;
- Ensuring that sufficiently skilled and trained employees are available to implement safety management processes;
- Ensuring that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are assigned only tasks for which they are adequately trained;
- Establishing and measuring our safety performance against realistic and data-driven safety performance indicators and safety performance targets;

- Continually improving our safety performance by ensuring appropriate safety management action is taken and is effective; and
- Ensuring externally supplied systems and services that support our operations are delivered to meet our safety performance standards.
- A Joint Safety Committee for each mode (Rail and Bus), consisting of an equal number of frontline transit workers and management representatives from key transit service functions, such as operations and maintenance. These committees will approve updates and changes to the Public Transportation Agency Safety Plan (PTASP) for each mode, and address safety risk mitigations identified and recommended by the committee.

Sharon Cooney Chief Executive Officer San Diego Metropolitan Transit System	Stephen Whitburn Chair of Board of Directors San Diego Metropolitan Transit System
Date	Date

MTS Agency Safety Plan
Safety Responsibilities – Description

Each MTS employee is required to carry out specific safety responsibilities consistent with their position. Safety does not begin and end with MTS' front-line employees. All levels of management are accountable for the delivery of safe transit service and safe work environments. Employees must have a clear definition of their individual responsibilities relative to the Safety Management System (SMS). The information provided below describes the safety responsibilities of employees and the applicable reporting structure.

Position:	MTS Agency Safety Plan Designations:	Reports to:	SMS Responsibilities:
Board of Directors		General Public	Approves the SMS Policy Statement and Agency Safety Plan; Promotes the Safety Management Policy Objectives to External Stakeholders and the General Public; and Provides Overall Accountabilitiy of and Support to Chief Executive Officer for Addressing the Objectives of the SMS Policy.

Position:	MTS Agency Safety Plan Designations:	Reports to:	SMS Responsibilities:
Chief Executive Officer	Board of Directors Designates the Chief Executive Officer as the **Accountable Executive for the MTS Agency**	Board of Directors	Develops and Upholds Safety Objectives; Ensures Safety Objectives are Prioritized in Budget Planning Process and Allocation of Resources; Directs the Capital and Financial Resources Needed to Maintain the Agency Safety Plan; Informs and Educates the Board of Directors on Implementation of Safety Objectives and Identification of Significant Safety Risks; Promotes the SMS Policy and a Positive Safety Culture throughout the Agency; and Retains the Ultimate Responsibility for the Performance of SMS and Approves the MTS Agency Safety Plan.
General Counsel		Chief Executive Officer; and Board of Directors	Advises and Recommends Actions to Reduce Legal Risks and Liabilities; Oversees Risk, Workers' Compensation and Insurance.

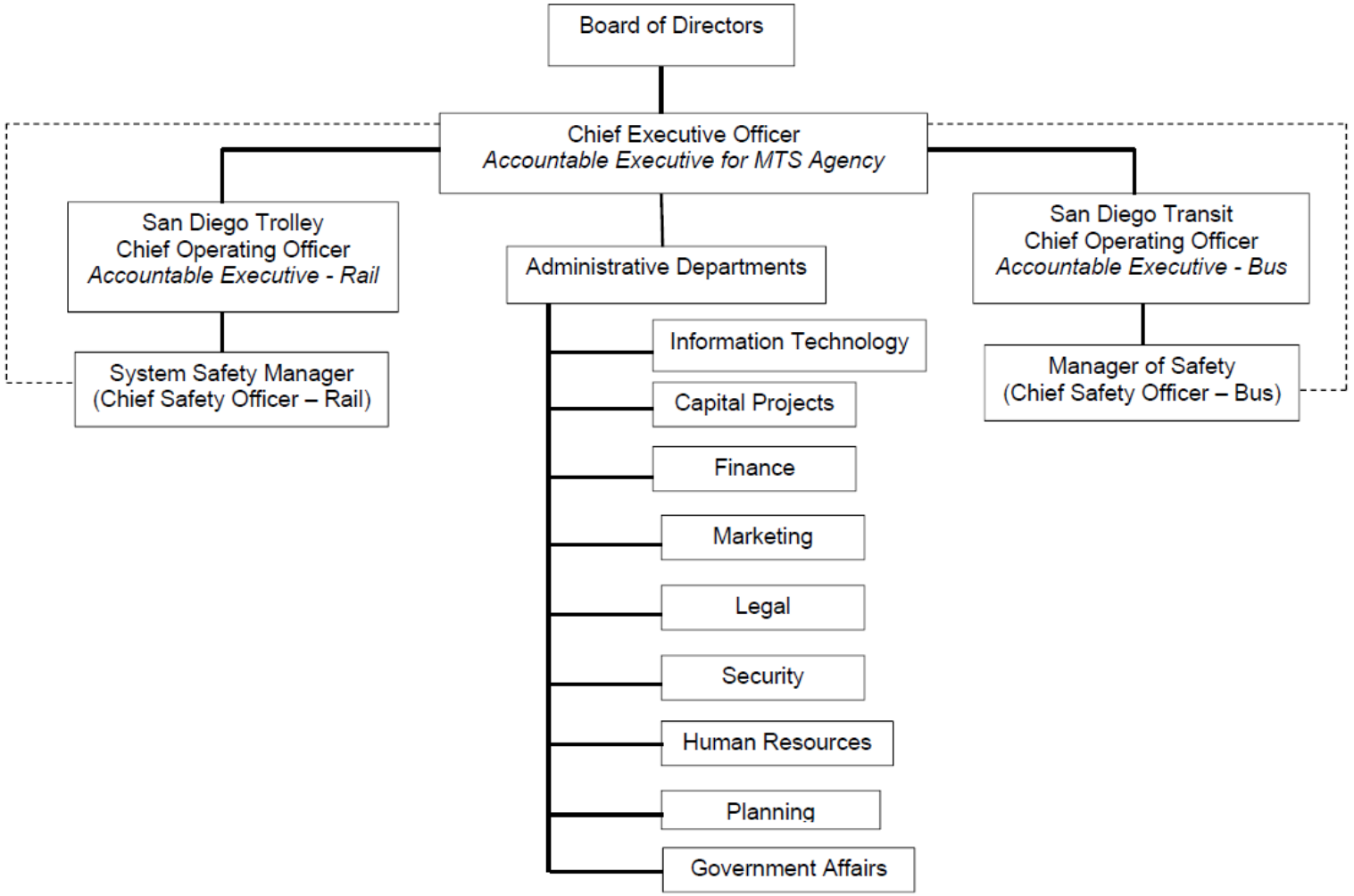
Position:	MTS Agency Safety Plan Designations:	Reports to:	SMS Responsibilities:
Chief Operating Officer of Transit	Chief Executivie Officer designates the Chief Operating Officer of Transit as the **Accountable Executive for Transit**	Chief Executive Officer	Manages Day to Day Operations and Maintenance for Transit; Directs the Implementation of SMS for Transit; Establishes SMS as a Core Value for Transit; and Evaluates the Performance of SMS for Transit.
Chief Operating Officer of Trolley	Chief Executive Officer designates the Chief Operating Officer of Trolley as the **Accountable Executive for Trolley**	Chief Executive Officer	Manages Day to Day Operations and Maintenance for Trolley; Directs the Implementation of SMS for Trolley; Establishes SMS as a Core Value for Trolley; and Evaluates the Performance of SMS for Trolley.
Safety Manager of Bus	Chief Executive Officer designates the System Safety Manager of Bus as the **Chief Safety Officer for Bus**	Chief Operating Officer – Transit; and Chief Executive Officer as necessary	Coordinates Implementation and Operation of SMS for Bus.
Safety Manager of Trolley	Chief Executive Officer designates the Safety Manager of Trolley as the **Chief Safety Officer for Trolley**	Chief Operating Officer – Trolley; and Chief Executive Officer as necessary	Coordinates Implementation and Operation of SMS for Trolley.
Chief Financial Officer		Chief Executive Officer	Oversees Budgeting and Procurement of All Goods and Services Necessary for Implementation of Safety Objectives.

Position:	MTS Agency Safety Plan Designations:	Reports to:	SMS Responsibilities:
Director of Planning		Chief Executive Officer	Oversees Internal Planning Efforts and Coordinates with External Stakeholders to Ensure Safety Concerns are Addressed in Design and Location of Facility and Transit Amenities.
Director of Transit Enforcement/Security		Chief Executive Officer	Oversees Security and Law Enforcement Efforts In Preparation for and in Response to Safety and Security Incidents.
Director of Human Resources and Labor Relations		Chief Executive Officer	Oversees the Hiring and Employment of Qualified Employees that Demonstrate Safety Effectiveness.
Director of Capital Projects		Chief Executive Officer	Oversees Implementation of Design and Construction Projects to Address Identified Safety Action Items.
Director of Marketing and Communications		Chief Executive Officer	Oversees the Communication and Distribution of Information Regarding Safety and Security Practices to the Agency and the Public.
Director of Planning		Chief Executive Officer	Oversees Internal Planning Efforts and Coordinates with External Stakeholders to Ensure Safety Concerns are Addressed in Design and Location of Facility and Transit Amenities.
Manager of Government Affairs		Chief Exeuctive Officer	Oversees the Legislative and Lobbying Efforts to Facilitate with Identified Safety Goals.
Director of Information Technology		Chief Executive Officer	Oversees the Management of Technology and Computer Systems that Support SMS.
Environmental Health and Safety Specialist		Chief Operating Officer – Transit and Chief Operating Officer – Trolley, as applicable	Oversees Compliance with Environmental and Occupational Health and Safety Regulations.

Position:	MTS Agency Safety Plan Designations:	Reports to:	SMS Responsibilities:
Operations and Maintenance		Chief Operating Officer – Transit or Chief Operating Officer – Trolley, as applicable	Adheres to Policies and Procedures on Established Safety Goals, Responsibilities, and Objectives; and Reports Safety Hazards and Concerns to Management.
Administration		Applicable Management	Supports the Agency's Mission in Achieving a Safe Operating Environment; and Reports Safety Hazards and Concerns to Management.

Safety Responsibilities – Organization Chart

SAN DIEGO METROPOLITAN TRANSIT SYSTEM
MTS AGENCY SAFETY PLAN (PTASP)
ORGANIZATIONAL CHART



MTS Agency Safety Plan
SMS Documentation and Records

MTS's SMS is supported by further policies and procedures developed by the Departments responsible for the management of safety. MTS's Agency Safety Plan is organized by mode, which include bus and light rail service. Bus service is operated directly through the San Diego Transit Corporation (SDTC), as well as through contracts with private operators. Light rail service is operated directly through San Diego Trolley, Inc. (SDTI). The Bus Agency Safety Plan and Rail Agency Safety Plan comply with the objectives and goals of the SMS Policy Statement and are readily available and communicated throughout MTS. The following framework is documented within the Bus Safety Plan and the Rail Safety Plan:

I. **Safety Management System (SMS) Policy**
- Safety Performance Goals and Objectives
- Organizational Structure and the Specific Employee Responsibilities for Safety
- Employee Safety Reporting Program
- Coordination with both External Organizations and other Internal Departments to Manage Emergencies and other Public Safety Incidents

II. **Safety Risk Management**
- Safety Hazard Identification
- Safety Risk Assessment
- Safety Risk Mitigation

III. **Safety Assurance**
- Developing Safety Performance Targets
- Monitoring and Measuring Safety Performance
- Managing Changes in Operations
- Continuously Improving Processes

IV. **Safety Promotion**
- Communicating Safety Performance on Hazards and Safety Risks Relevant to an Employees' Roles and Responsibilities
- Establishing a Comprehensive Safety Training Program for MTS Employees and Contractors Directly Responsible for the Management of Safety

The Chief Executive Officer will annually review the MTS Agency Safety Plan and the corresponding Policies and Procedures implementing the SMS and update as necessary. The Board of Directors will approve the MTS Agency Safety Plan on an annual basis, if updates. The MTS Agency Safety Plan will be maintained for a minimum of three (3) years after approval.

Attachments

I. Rail Agency Safety Plan

- Rail Joint Safety Committee Plan
- Transit Worker Assault Risk Reduction Plan

II. Bus Agency Safety Plan

- San Diego Transit Corp. (SDTC) Safety Plan
- Private Contractor Transdev Safety Plan
- Private Contractor First Transit Safety Plan
- Risk Reduction Plan

III. Infectious Disease Preparedness and Response Plan (COVID-19 Prevention Program)

Revision 4, January 2026

Metropolitan Transit System

Rail Safety Plan

San Diego Trolley, Inc.

(Public Transportation Agency Plan pursuant to 49 CFR 673)



Approved by MTS Board of Directors on 6/18/2026

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1.0 SAFETY MANAGEMENT POLICY

POLICY STATEMENT

The San Diego Metropolitan Transit System (MTS) has established this Safety Management System Policy Statement to emphasize its overall commitment to the safety of its passengers, operators, staff, and the general public. This Safety Management System Policy Statement provides direction for MTS's safety program, which applies to every facet of MTS operation.

The management of safety is MTS's highest priority. MTS is committed to safety throughout the entire organization, from the Board of Directors to the frontline employees. MTS will ensure that all transit service delivery activities take place under a balanced allocation of organizational resources to achieve the highest level of safety performance and meeting established standards. MTS is committed to developing, implementing, maintaining, and constantly improving its processes.

As evidence of MTS's commitment to safety, every MTS policy shall be guided by, and every employee shall perform their duties in furtherance of the following safety goals and objectives:

1. Supporting safety through the provision of appropriate resources that fosters a safety culture.

2. Integrating the management of safety among the primary responsibilities of all managers and employees.

3. Clearly defining managers' and employees' responsibilities in relation to the performance of MTS's safety management system.

4. Conducting hazard identification and evaluating safety risks, which includes an employee safety reporting program, in order to eliminate or mitigate safety risks.

5. Ensuring that no action will be taken against any employee who discloses a safety concern through the employee safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures.

6. Complying with, and wherever possible exceeding, legislative and regulatory requirements and standards.

7. Ensuring that sufficiently skilled and trained employees are available to implement safety management processes.

8. Ensuring that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are assigned only tasks for which they are adequately trained.

9. Establishing and measuring MTS's safety performance against realistic and data-driven safety performance indicators and safety performance targets.

10. Continually improving MTS's safety performance by ensuring appropriate safety management action is taken and is effective; and

11. Ensuring externally supplied systems and services that support MTS's operations are delivered to meet its safety performance standards.

12. A Joint Safety Committee consists of an equal number of frontline transit workers and management representatives from key transit service functions, such as operations and maintenance. This committee will approve updates and changes to the Public Transportation Agency Safety Plan (PTASP) and address safety risk mitigations identified and recommended by the committee.

_____ Date: _____
Chief Executive Officer - MTS

_____ Date: _____
Chairperson of MTS Board of Directors

_____ Date: _____
Chief Operations Officer - MTS Rail

+

1.1 AUTHORITY, PURPOSE, GOALS AND OBJECTIVES

MTS is a California transit district that operates multiple modes of transit: light rail transit (Rail) and fixed route/ADA complementary paratransit bus operations (Transit). The agency has three major divisions: Administration, Rail[1] and Transit. The MTS Chief Executive Officer (CEO) is responsible for managing all aspects of the agency, with direction from the Board of Directors. Because of the distinct differences in operations, MTS has prepared a Safety Plan for each individual division: Rail and Transit. This is MTS's Rail Agency Safety Plan.

San Diego Trolley, Inc. (SDTI) is a wholly owned subsidiary of San Diego Metropolitan Transit System (MTS), with administrative offices located at 1255 Imperial Avenue, Suite 1000, San Diego California 92101. The SDTI System Safety Manager, reporting directly to the Chief Operating Officer-Rail (COO-Rail) and the CEO as necessary, is empowered to develop and administer a comprehensive Public Transportation Agency Safety Plan (ASP) for rail transportation within San Diego Trolley, Inc. (SDTI). It is the duty of all employees to cooperate with, and provide information to, the System Safety Manager with respect to safety-related matters. All employees and any outside contractor agencies or organizations working on SDTI property must fully comply with the orders set forth in the ASP. The program applies to:

- Design, construction, inspection, testing, start-up, operation, and maintenance activities that affect the SDTI system
- Fixed facilities, vehicles, and system equipment

The MTS Board of Directors has designated the CEO as the Accountable Executive for the MTS Agency. The CEO designated the COO-Rail as the Accountable Executive for Rail. The Accountable Executive for Rail is responsible for the following:

- Approving the ASP and any updates
- Implementing and maintaining the Safety Management System (SMS)
- Making decisions over the human and capital resources needed to develop and maintain the SDTI's Transit Asset Management Plan
- Having the ability to make budgetary, operational and capital program decisions to address safety and asset management concerns
- Relying on outputs of SMS processes and activities to ensure that SDTI's strategic planning is informed and transparent with regard to the role of safety in decision-making
- Ensuring that action is taken to address substandard performance in the agency's SMS

The Accountable Executive the MTS Agency (CEO) has designated the System Safety Manager as the Chief Safety Officer (CSO). The System Safety Manager is an adequately trained individual with responsibility for safety who reports directly to the Accountable Executive (COO-Rail). The System Safety Manager is responsible for day-

[1] Historically, the Rail division was run by a separate entity, San Diego Trolley, Inc. (SDTI). SDTI is a wholly-owned subsidiary of MTS. While some operations continue under the SDTI entity (e.g. legacy property ownership or agreements), in practical terms it is operated as the Rail division of MTS.

to-day implementation and operation of the agency's SMS and does not serve in other operational or maintenance capacities.

SDTI supports the development and growth of its internal SMS processes. To this end, SDTI conducted a gap analysis of the agency's SMS activities (April 2017). This analysis has been instrumental in implementing SMS throughout SDTI.
This ASP has been developed in accordance with Safety Management System principles, as defined by the FTA. It has been prepared in accordance with guidelines established by the American Public Transportation Association Rail Transit Safety Management System Guide (2016), the Federal Transit Administration (FTA) Moving Ahead for Progress in the 21st Century Act (2012), the FTA requirements for Agency Safety Plans under 49 Code of Federal Regulations (CFR) Part 673, Bipartisan Infrastructure Law (2021) and the California Public Utilities Commission (CPUC) General Order 164-F (2018). The CPUC is designated as the State Safety Oversight Agency (SSOA) and must review and approve the MTS Agency Safety Plan. The CPUC's SSOA Program was approved and certified by the FTA in accordance with the requirements of Federal Public Transportation Safety Law 49 U.S.C 5329 (e) and FTA's SSO regulation 49 CFR Part 674 on October 23, 2018.

This plan has also been prepared in a manner prescribed by the State of California Occupational Safety and Health Administration (Cal/OSHA) and mandated by California Labor Code (Section 6401.7).

The System Safety Manager administers the ASP on a day-to-day basis with specific tasks monitored by appropriate management personnel. All SDTI, MTS, and SANDAG project-implementation staffs are, as applicable, responsible for undertaking the relevant safety efforts described in this plan.

1.1.1 Purpose and Scope

The ASP provides a formal and documented plan wherein safety goals, objectives, responsibilities, and procedures are established and monitored to ensure compliance with state and federal regulatory requirements, as well as to ensure the agency observes industry best practices in all areas of the operation.

The ASP encompasses all rail system elements of SDTI, including employees, contractors, and relationships with external agencies. All departments involved in safety tasks should have a clear definition of their individual responsibilities relative to the SMS. The relationship of the safety unit to operations should be clearly defined.

SDTI has established safety as a core value, where top management are tasked with overseeing the establishment of organizational factors necessary to achieve improved safety and to lead others in the effective implementation of SMS principles within SDTI.

The FTA's definition of SMS is the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices and policies for managing risks and hazards.

The purpose of the SDTI SMS is to provide a comprehensive, collaborative approach that brings management and labor together to build a safety program. SMS builds upon SDTI's existing safety programs to provide the means to accomplish the following:

- Control safety risk better
- Detect and correct safety problems earlier
- Share and analyze safety data more effectively
- Measure safety performance more carefully

There are four components to SDTI's Safety Management System:

1. Safety Management Policy
2. Safety Risk Management
3. Safety Assurance
4. Safety Promotion

1.1.2 Goals

The overall goal of the SDTI Safety Management System is to experience continuous improvement in safety performance. To accomplish this, SDTI will identify, eliminate, minimize and/or control safety hazards and their attendant operational risks by establishing control requirements, lines of authority, and levels of responsibility and methods of documentation for the organization. Safety is SDTI's top priority in alignment with SDTI's mission. Top management's role is to ensure that these safety goals and safety policies are implemented within SDTI.

It is the goal of SDTI's ASP to ensure that all employees, patrons, and the public are provided the safest environment possible while on the SDTI system and within its facilities. Additionally, SDTI through the ASP:

- promotes the philosophy of safety to all employees, patrons, and contract personnel
- provides a method of implementing goals and objectives relating to safety
- provides a method for recommending appropriate corrective action to mitigate potential hazards and maintain oversight to ensure safety remains at the optimum level
- promotes and maintains safety and training programs mandated by federal and state regulatory agencies and required to implement the SMS
- maximizes the safety of future operations by affecting the design and procurement processes

1.1.3 Objectives

The ASP objectives provide a mechanism to ensure the ASP goals are attainable, provide a method of measuring the safety program effectiveness and support the goal of continuous improvement in safety performance. The ASP objectives are:

1. Safety shall be the first consideration during SDTI involvement in system design, construction, and operation
2. Safety hazards are identified and either eliminated, mitigated or controlled throughout the life cycle of the system
3. Verify that all aspects of the operation adhere to SDTI safety policies and procedures, and state and federal regulatory requirements
4. Meet or exceed industry safety requirements in rail operations and maintenance
5. Meet or exceed SDTI performance targets for safety and state of good repair
6. Investigate all major incidents/Safety Event by identifying and documenting primary causes, contributing factors, and implementing corrective action to prevent a recurrence, and verifying implementation through configuration management procedures
7. Evaluate the implications of all proposed modifications prior to implementation as they relate to safety
8. Maintain association with federal, state, and local agencies to obtain safety-related agreement permits, and approvals where applicable

1.1.4 Policies

The following policies are set forth to attain the ASP objectives:

- All phases of construction activity under SDTI's influence require the highest safety standards and practices for major public works projects. The public shall not be exposed to extraordinary safety hazards.
- Operational systems shall meet all safety-related codes and regulations issued by appropriate federal, state, and local authorities.
- Health and safety provisions for SDTI passengers and personnel shall be equal to, or exceed those required by federal, state, and local regulatory authorities.
- Goals and objectives shall be considered throughout all phases of the operation and maintenance of the SDTI system.
- Annual internal safety audits shall be conducted to ensure compliance with the ASP. Recommendations shall be implemented following configuration management procedures.
- Department Directors and Managers shall ensure distribution of the ASP to all personnel directly responsible for meeting its goals, carrying out its objectives, and enforcing its policies.

1.2 SAFETY ACCOUNTABILITIES AND RESPONSIBILITIES

1.2.1 System Description

1.2.1.1 History

The Metropolitan Transit Development Board (MTDB), created by state law (Mills, SB 101) in 1975, was empowered to design, engineer, and build fixed-guideway facilities within San Diego County. MTDB created the SDTI in August

1980 as a wholly owned subsidiary responsible for operation and maintenance of the LRT system.

Effective January 1, 2003, SB 1703, the San Diego Regional Transportation Consolidation Act, directed consolidation of two main functions among SANDAG, MTDB (San Diego Metropolitan Transit System) and the North County Transit District (NCTD): (1) planning and programming, and (2) engineering and construction. Planning, design, and construction of the LRT system is coordinated with SDTI management and in compliance with the MTS LRT design criteria. SANDAG engineering staff administers regional construction contracts for, and under the direction of, the MTS Board and executive staff. MTS contractors and MTS staff administers local and minor improvement projects.

1.2.1.2 Scope of Services

The SDTI system spans 65 track miles in length and is serviced by the Blue Line, the Orange Line, the Green Line, the Silver Line and Copper Line.

BLUE LINE
Revenue service for the Blue Line began on July 26, 1981. The Mid-Coast extension of the Blue Line, which spans 10.9 miles and includes 9 stations, opened on November 21, 2021. This extension connects the Old Town Transit Center to La Jolla Village, the University of California San Diego campus, and Westfield UTC Mall. The Blue Line extends a total of 30 miles, starting from the San Ysidro station at the International Border to the University Town Center. Of this total, 1.4 miles (from C Street & India to 12th & Imperial) operate on city streets, while 14 miles (from 12th & Imperial to San Ysidro) run on a semi-exclusive right-of-way. The Blue Line comprises 32 stations, sharing 6 stations with the Orange and Silver Lines downtown and five with the Green Line. The Blue Line operates across four jurisdictions: San Diego, National City, Chula Vista, and an unincorporated area of San Diego County.

ORANGE LINE
Revenue service on the first phase of the Orange Line, which runs from Imperial Transfer to Euclid Station, began on March 23, 1986. The line was extended to El Cajon in 1989 and to Santee in 1995. In April 2018, both terminals of the Orange Line were changed. Currently, the Orange Line extends 17.7 miles from the Courthouse Station in downtown San Diego to Arnele Avenue Station in El Cajon. Out of the total 17.7 miles, 3.1 miles (from C Street & India to Commercial & 32nd) are operated on city streets, while 14.6 miles run on a semi-exclusive right-of-way from 32nd and Commercial to Arnele Avenue. The Orange Line consists of 19 stations, sharing five with the Blue and Silver Lines downtown and five with the Green Line (one in downtown and three in East County). It operates through four jurisdictions: the cities of San Diego, Lemon Grove, La Mesa, and El Cajon.

GREEN LINE
Revenue service began on the Green Line on July 10, 2005. The Green Line extends 19 miles from the 12th & Imperial along the bayside to Old Town Transit Center through Mission Valley to Ela Cajon Transit Center, including a 0.7-mile subway tunnel under San Diego State University (SDSU). The Green Line

comprises 24 stations, sharing three with the Orange Line in East County, five with the Blue Line, and four with the Silver Line downtown. The Green Line operates through four jurisdictions: San Diego, La Mesa, and El Cajon.

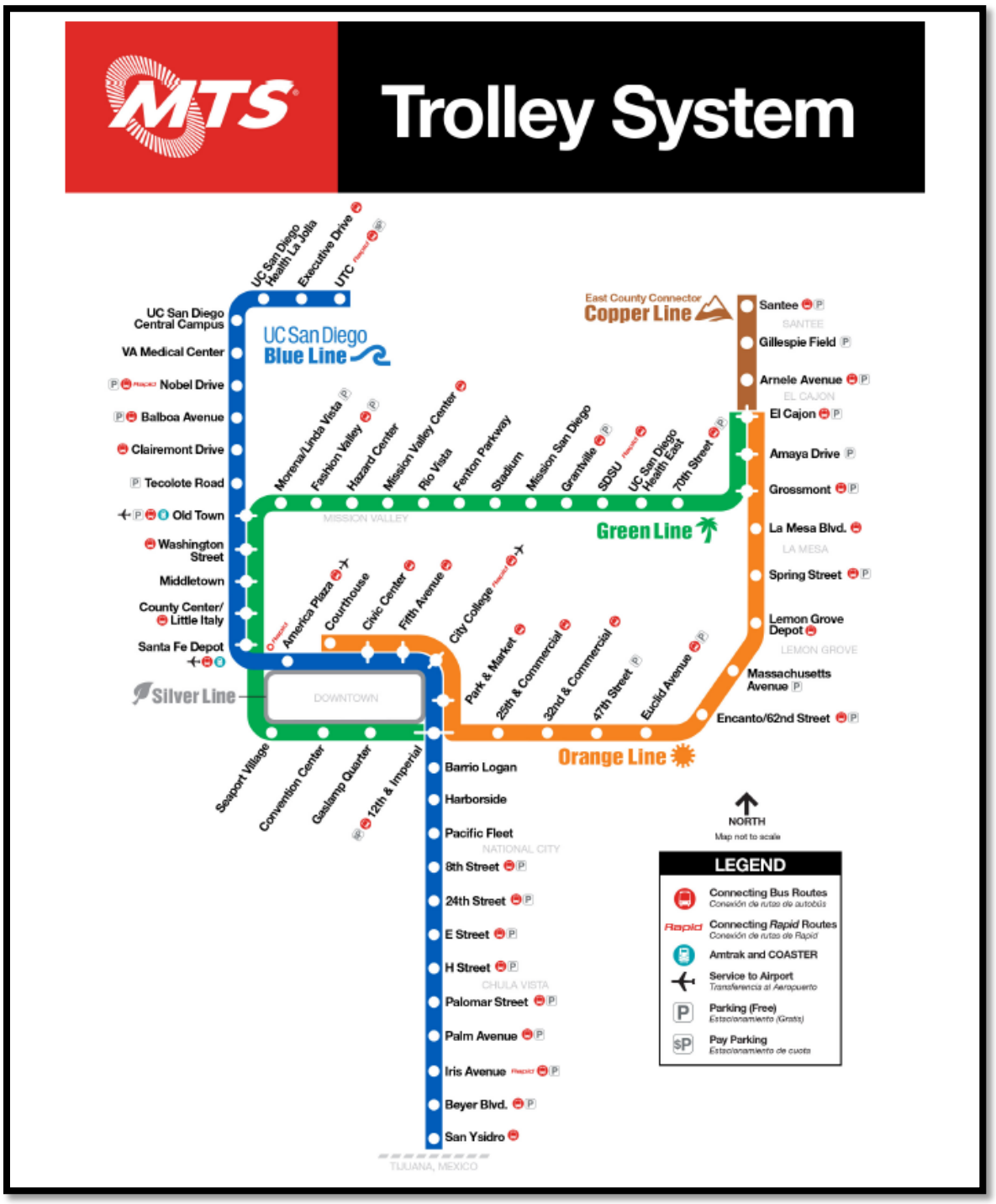


Figure 1: SDTI System Map

Copper Line

Revenue service on the Copper Line began on August 29, 2024. This line spans 3.58 miles and features two tracks between El Cajon and Gillespie Field, along with one track connecting Gillespie Field and Santee. The Copper Line includes four stations, one shared with the Green Line and the Orange Line. It operates across two jurisdictions: El Cajon and Santee.

SILVER LINE
Revenue service on the Silver Line began in August 2011. The Silver Line is a 2.7-mile loop in downtown San Diego along Harbor Drive, C Street, and Park Blvd, completing its loop at 12th & Imperial, and is hosted to restored 1940's era Presidential Conference Committee (PCC) streetcars. The Silver Line is comprised of nine stations, sharing six with both the Blue and Orange Lines, and three with the Green Line.



Figure 2: Silver Line Map

1.2.1.3 Rail Fixed Guideway

Trains operate on-site in segments of the system that do not have automatic block signals and are primarily in non-exclusive right-of-way. Maximum speeds vary between 25mph (in the downtown area) to 55mph. Trains are governed by automatic block signaling (ABS) on semi exclusive right-of-way. The ABS system consists of a series of consecutive blocks of defined track limits equipped with interlocked wayside signal circuits that monitor the status and control movements of key elements of the signaling system and ensure the safe movement of light rail and freight trains.

1.2.1.4 Traction Power Substations

SDTI trains are electrically propelled using high-voltage DC power, which is fed via an overhead catenary system (OCS) from traction power substations located along the right-of-way. Isolated OCS sections can be de-energized by opening appropriate circuit breakers in the substations or via pole-mounted sectionalizing switches. SDTI utilizes seventy (70) substation locations throughout the system. These substations are equipped with a rotating blue trouble light that indicates a malfunction associated with the substation. When observed, a Train Operator reports the trouble light to the Operations Control Center, Line Supervisor, or

maintenance crew. Only trained and qualified employees may remove power in emergencies.

1.2.1.5 Overhead Contact System

A power distribution system known as an Overhead Contact System (OCS) provides electrical power to the LRVs. The minimum contact wire height above the top of the rail in areas of light rail vehicle usage is nineteen feet, except in exclusive and semi exclusive right-of-way. The CPUC granted an exemption to General Order 95 (Overhead Electric Line Construction) and allowed the minimum contact wire height above the top of the joint-usage track rail reduced to 22 feet. The contact wire profile is as low as 14 feet Gillespie Field and Lindbergh Field Airport glide paths; Grape, Hawthorn, and 70th Streets; Morena Boulevard; and San Diego State University tunnels). Segments of track throughout the downtown area (C Street, Park Boulevard, Commercial Street, Harbor Drive and in the Yard) have fixed-termination OCS where operating speeds are lower. In all other areas of the right-of-way, a constant-tension catenary system allows for higher operating speeds.

1.2.1.6 Stations

SDTI has sixty-two barrier-free passenger stations that provide circulation between street, bus/auto connections, and platform/track areas. There are fifty-one stations outside the "Centre City" zone shown on MTS System map. Many stations outside the Centre City zone have adjacent parking, pick-up/drop-off zones, and bus pull-in areas to accommodate patrons. All stations are equipped with a public address system to notify patrons of service changes. Key stations are equipped with changeable message signs that display the same information, which broadcasts over the public address system.

1.2.1.7 Light Rail Vehicles

The SDTI fleet currently consists of Light Rail Vehicles (LRVs) manufactured by the Siemens Corporation and Presidential Conference Committee cars (PCC) manufactured by the St. Louis Car Company (reference Figure 3: SDTI Fleet). LRVs have a dual articulated center and operating cabs on each end. There is no access between LRVs when coupled. Safety features include a fire extinguisher, a mobile radio equipped with a silent alarm button mounted in each operating cab, a passenger emergency intercom system, a fail-safe system to prevent movement of the train in the event doors are not fully closed, and an onboard CCTV system. A Train Operator (T/O), who performs all operational functions, controls trains manually.

Figure 3: SDTI Fleet

Model:	U2	SD-7	SD-8	SD-9	SD-10	PCC
Fleet Size:	1	11	65	45	47	2
Length:	80 feet	90 feet	80 feet	80 feet	80 feet	45 feet
Weight:	40 tons	48 tons	40 tons	40 tons	40 tons	25 tons
Max Speed:	50 mph	55 mph	55 mph	55 mph	55 mph	25 mph

1.3 ORGANIZATIONAL STRUCTURE

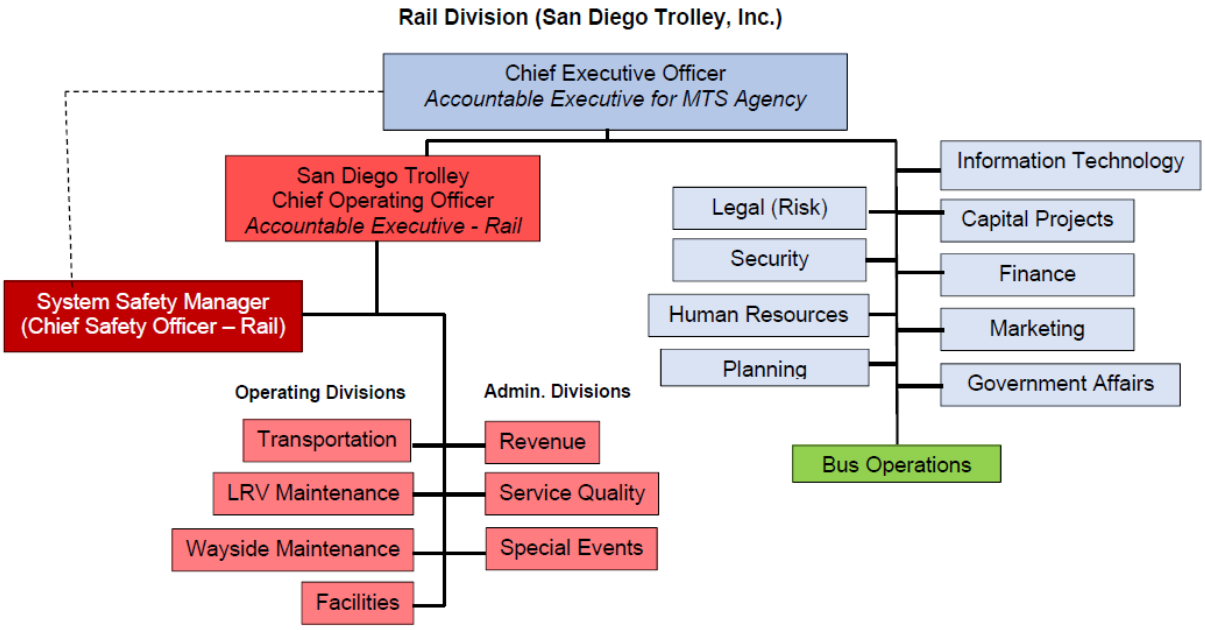


Figure 4: Organization Chart for MTS Rail Transit Operations

MTS has three (3) major divisions: Administration, Rail and Transit. The MTS CEO is responsible for managing all aspects of the agency, with direction from the Board of Directors. The CEO has designated the COO-Rail to manage Rail operations.

The COO-Rail reports to the MTS CEO. For the Rail division, administrative and operational functions consist of departments directed by the COO-Rail. The administrative functions are responsible for the daily management of system-support requirements provided by the Facilities, Revenue (fare vending machine maintenance and collection/processing), Engineering, Purchasing, Stores, Claims Administration, and Accounting Departments. The operational functions consist of the Transportation, Light Rail Vehicle (LRV) Maintenance, and Wayside Departments. The Superintendents of these sub departments are responsible for establishing and implementing the ASP safety requirements.

1.3.1 Board of Directors

The Board of Directors is responsible for setting policy for SDTI. They are required to approve the ASP initial document and all updates. The Board of Directors receives periodic safety briefings from SDTI.

1.3.2 Accountable Executive

The Accountable Executive of the MTS Agency is the CEO who has ultimate responsibility for safety within the MTS organization. The MTS CEO designated the COO of Rail (SDTI) as the Accountable Executive for Rail.

The Accountable Executive- Rail is responsible for establishing and implementing the Safety Management System for Rail operations. The COO-Rail directs and provides support for all rail operations functions and is responsible for decisions regarding safety risks. The COO-Rail will elevate relevant safety discussions to the CEO's attention. The COO-Rail will support and encourage an open dialogue between the System Safety Manager (CSO) and the CEO.

1.3.3 System Safety Manager/Chief Safety Officer (CSO)

The System Safety Manager (CSO) is responsible for managing the SMS on a day-to-day basis. The System Safety Manager oversees safety within SDTI and provides technical support to the CEO and COO-Rail, and to the Board of Directors regarding safety. The System Safety Manager is responsible for the chairing safety committees; providing safety input to operations, procedures, rules and training; internal audits; /incidents/ Safety Event/near-miss investigations and reporting; safety input for major extensions and rehabilitations of the transit system; and hazard analyses.

The CSO must be adequately trained and is responsible for ensuring compliance with requirements as set forth in 49 CFR 672, which provides minimum training requirements to enhance the proficiency of transit safety oversight professionals. This training shall meet the requirement as outlined in Appendix A to 49 CFR 672 and include the required annual refresher training. The CSO must be enrolled in the 49 CFR Part 672 – Public Transportation Safety Certification Training Program (PTSCTP) and must complete the training within the three (3) year prescribed timeframe.

The CSO reports to the COO- Rail. The CSO works with the COO-Rail to implement the Agency Safety Plan.

The CSO has a dual reporting role with the COO-Rail and the CEO. As necessary to implement the Safety Plan and discuss relevant issues, the CSO has a duty and right to report directly to and consult with the CEO. The CSO will have direct access to the CEO at all times regarding all safety related issues.

1.3.4 Facilities Department

The Director of Rail Facilities reports directly to the COO-Rail. The Facilities Manager is responsible for the maintenance and operation of all fixed facilities and equipment, including all trolley stations, shelters, canopies, signage, equipment, parking lots, landscaping, related right-of-way maintenance and all irrigation systems. Scheduled weekly maintenance includes maintenance of stations, facilities/buildings and grounds, as well as vehicle inspections. Bimonthly maintenance is performed on the LRV car wash and sludge/drain system and stations and facilities maintenance is conducted annually and as needed. In accordance with SMS principles, a supervisor ensures that corrective actions are implemented and closed out in a timely manner and reviews inspection and trouble reports. The Director of Rail Facilities writes specifications, initiates, monitors contract maintenance services, and ensures that all designated facilities are maintained in a safe, operational, and presentable state.

1.3.5 Revenue Department

The Lead Revenue Maintenance Supervisor and the Revenue Operations Manager report directly to the COO of Rail and the Fare Systems Administrator. The Fare Systems Administrator is responsible for overseeing revenue administration, reporting, and management functions. Both the Lead Revenue Maintenance Supervisor and the Revenue Operations Manager are tasked with managing the Ticket Vending Machine (TVM) revenue collection and recovery process. Their responsibilities also include ensuring the security, maintenance, and accuracy of fare collection equipment, as well as revenue accounting, analysis, auditing, and reporting functions. They coordinate armored transport and banking activities in accordance with MTS policies. Additionally, the Fare Systems Administrator implements policies and procedures to guarantee that revenues are handled safely and securely. This role involves researching, analyzing, and monitoring all phases of the fare collection process, along with developing findings and making appropriate recommendations.

1.3.6 Stores Department

The Manager of Inventory Operations reports to the Director of Supply Chain & Operations and is responsible for all MTS warehouses, including departments within SDTI, SDTC (bus operations) and MTS administration.

All warehouse personnel are responsible for the management of functions associated in ensuring the availability, upkeep and distribution of all items stored in each warehouse that include but not limited to maintenance spares, tooling, consumable and commercial items. In addition, the warehouse is also responsible for the management of disposals across inventory and company assets.

Included in the Manager Inventory Operations role is the establishment of strategic direction and tactical delivery for the department. The Manager will work alongside safety and environmental departments to facilitate and ensure a safe and risk-free environment for each employee. In delivering exceptional performance, each warehouse employee will be adequately trained to attain a high level of understanding across the role of a storekeeper and to provide exceptional customer service through the efficient discharge of their duties.

1.3.7 Engineering Department

The Director of Capital Projects reports directly to the CEO and is responsible for the coordination of all engineering and construction activities of the organization. The Director of Capital Projects provides regular updates to the COO-Rail.

1.3.8 Transportation Department

The Director of Rail Transportation reports directly to the COO-Rail. The Director of Rail Transportation is responsible for the operational planning and overall supervision of all employees involved in the transportation discipline of SDTI, including mainline and yard service and the operation of all trains in accordance with the approved timetables. The Director of Rail Transportation is also in close and continuing association with the initial and subsequent installation, testing and

preoperational system check-out of various systems comprising the light rail system and must be sufficiently knowledgeable and experienced to render timely and effective assistance in establishing and coordinating applicable operating and safety procedures. The Director of Rail Transportation is responsible for promulgating operating rules, regulations and related procedures, as well as the enforcement of safety policies and the review of problem areas to determine the need for changes to improve operating and safety procedures. The Director of Rail Transportation ensures that contingency plans are up-to-date and readily available in the event of an emergency, including incidents/ Safety Events and system delays in general. The Director of Rail Transportation ensures that properly trained personnel and appropriate equipment are available to respond on a timely basis to rectify the problem(s) and restore normal operations.

Both SDTI and San Diego & Imperial Valley Railroad (SD&IV) trains operate under the authority of the Operations Control Center (OCC). The OCC is staffed twenty-four hours a day, seven days a week and provides twenty-four-hour emergency response for SDTI employees and local emergency-response agencies. An integrated fire management panel monitors/controls the emergency ventilation system and traction power emergency trip switches in the event of a fire or other emergency within the tunnel or platform areas integrated within the SDSU Station. Ventilation of the tunnels and station platform are also controlled through a computer program in the OCC interfaced with high-powered reversible fans and air dampers throughout the underground structure. A trespasser intrusion system will also activate an alarm at the OCC if a person or other detectible object smaller than an LRV enters a tunnel segment at either the station platform or the portal entrance from either end. The MTS Transit Security emergency contact number is posted on public information signs and passenger timetables for public knowledge.

The primary functions established for the OCC Facility and personnel are:

- Provide for the safety and security of SDTI personnel and passengers
- Maintain system-wide supervisory control by monitoring train operations and facilities that support the system
- Document incidents that result in system delays, injuries, or damages
- Maintain detailed reports on operational status items and reported defects
- Create unusual occurrence reports and various daily statistical summaries for dissemination
- Supervise personnel, direct operations, and maintain established service levels
- Execute corrective actions to optimize service levels and minimize adverse system-wide impact
- Monitor fire management panel and remain conversant with the emergency ventilation operation panel and trespasser intrusion system

The Controller on duty is responsible for all operational activities and must ensure that train movements (mainline and within yard limits) and any work performed on or about SDTI property is conducted in accordance with all safety requirements mandated by the CPUC, the FRA, and SDTI policies and procedures. Controllers also monitor SDSU tunnels via CCTV.

Train movements are controlled through:

- Speed restrictions, slow orders, and advisories printed daily on an Operating Clearance Form
- Verbal train orders communicated over a two-way radio system

All SDTI personnel and contractors working on the property perform their duties in a safe manner in accordance with written instructions and are verified through:

- Verbal two-way radio communications
- Field oversight (Line Supervisors and Employee-in-Charge/Flag person who inform the Controller of personnel adherence and progress)
- Operating clearances

In addition, train movements on signalized track are governed by automatic block signals (ABS). Special operations are conducted on an as-required basis for construction or maintenance needs. Authorization for special operations must receive approval from the Director of Rail Transportation.

1.3.9 Wayside Maintenance Department

The Director of Rail Wayside Maintenance reports directly to the COO-Rail. The Director of Rail Wayside Maintenance coordinates with subordinate staff and other department superintendents and managers to handle elements associated with the administration and maintenance responsibilities of the Wayside Division of the Maintenance Department. The Director of Rail Wayside Maintenance is responsible for directing, planning and scheduling inspections, maintenance and repairs of traction power, signals and switches, crossing gates, guideway structures, pumping stations, lighting and station electrical service and component devices (PA system, message signs, etc.).

The Maintenance-of-Way Department is responsible for the maintenance and repair of wayside equipment, including signals, grade-crossing protection, traction power, switches, track and substructures, as well as SDTI back-up generators. Wayside Department staff includes Shift Supervisors, Track Supervisors, Electro Mechanics, Linemen, Assistant Linemen, and Track Maintenance Personnel.

Shift Supervisor Responsibilities

Shift Supervisors' responsibilities include the following activities:

- Ensure that work site areas have safety and hazardous material inspections performed within required time frame
- Conduct and document scheduled safety meetings held with employees
- Ensure safety inspections and safety maintenance cycles performed on equipment and specialized facilities are appropriately scheduled and documented
- Verify that personal protective equipment (PPE) is available and in good working order

- Ensure that employees under their control follow the established safe-work practices and use the required personal protective equipment
- Confirm that the Hazard Communication Program Plan and MSDS binders are available to all maintenance employees
- Monitor personnel and verify that safety training was conducted, and tasks are performed safely
- Ensure that all affected personnel receive training to ensure the component is used in a safe manner when a new process, procedure, chemical, or piece of equipment is introduced into the workplace
- Assure proper forms are completed prior to the personnel's tour of work begins

1.3.10 Light Rail Vehicle (LRV) Maintenance Department

The Director of LRV Maintenance reports directly to the COO-Rail. The Director of LRV Maintenance establishes, implements, and monitors new or revised policies and guidelines for the LRV Maintenance Department. The Director of LRV Maintenance administers policies and programs, and plans, coordinates, schedules, and implements these into day-to-day activities as they relate to the efficient operation and maintenance of light rail vehicles. The Director of Rail LRV Maintenance ensures that all light rail vehicle maintenance meets regulatory agencies and internal standards, with special consideration given to the safety of patrons and employees. The Director of Rail LRV Maintenance supervises the enforcement of safety policies for all LRV Maintenance work areas.

- Ensure monthly work area safety inspections and weekly hazard material (hazmat) inspections are performed and documented on checklists
- Conduct and document scheduled monthly safety meetings with employees
- Ensure the performance and documentation of safety inspections and safety maintenance cycles of vehicles and equipment meet schedule requirements
- Verify that personal protective equipment (PPE) is available, in good working order, and used in compliance with established safety practices
- Ensure that the Hazard Communication Program Plan and Safety Data Sheets (SDS) are available to all LRV Maintenance employees for review upon request
- Monitor that employees perform assigned task(s) in a safe manner
- Ensure that training on proper use and operation of any new processes, procedures, chemicals, or equipment, including necessary safety precautions, is conducted

The LRV Maintenance Department is responsible for the maintenance, repair, and cleaning of all Light Rail Vehicles. Personnel include LRV Supervisors, Electro Mechanics, Linemen, and Assistant Linemen.

<u>LRV Supervisor Responsibilities</u>

- Ensure monthly work area safety inspections and weekly hazard material (hazmat) inspections are performed and documented on checklists

- Conduct and document scheduled monthly safety meetings with employees
- Ensure the performance and documentation of safety inspections and safety maintenance cycles of vehicles and equipment meet schedule requirements
- Verify that personal protective equipment (PPE) is available, in good working order, and used in compliance with established safety practices
- Ensure that the Hazard Communication Program Plan and Safety Data Sheets (SDS) are available to all LRV maintenance employees for review upon request
- Monitor that employees perform assigned task(s) in a safe manner
- Ensure that training on proper use and operation of any new processes, procedures, chemicals, or equipment, including necessary safety precautions, is conducted

1.3.11 Risk Department

The Manager of Risk and Claims reports directly to the General Counsel. The General Counsel reports directly to the CEO and the MTS Board of Directors as necessary. The Manager of Risk and Claims directs and manages the liability claims and workers' compensation functions of MTS and ensures that all claims and workers' compensation activities are properly processed and reported in accordance with state and federal regulations. The Manager of Risk and Claims manages and tracks claims and incidents, evaluates mitigation and insurance strategies, and facilitates the annual placement of MTS's excess liability, excess workers' compensation property, crime, and fiduciary liability insurance. The Manager of Risk and Claims coordinates activities, policies, and procedures with third-party administrators and insurance brokers on contract and insurance issues.

1.3.12 Transit Enforcement Department

The MTS Chief of Police/Director of Transit Security and Passenger Safety reports directly to the CEO. This department is staffed through contracted services and in-house Code Compliance Inspectors (CCIs). The Transit Enforcement Department conducts ongoing Security Risk Analyses for the system to maintain a secure environment for passengers, employees and facilities through identification of emerging significant security risks and to formulate solutions and mitigations.

1.3.13 Transit Asset Management (TAM) Program Manager

The MTS TAM Program Manager reports directly to the Deputy Chief Financial Officer. The Deputy Chief Financial Officer reports directly to the CFO. The TAM Program Manager is responsible for developing and coordinating new Transit Asset Management policies, data collection and FTA TAM reporting for bus and rail. The TAM Program Manager is also responsible for the agency's Capital Improvement Program and Capital budget.

1.4 INTEGRATION WITH PUBLIC SAFETY AND EMERGENCY MANAGEMENT

The System Safety Manager, in conjunction with representatives from Transit Enforcement and other departments are responsible for coordinating all rail system-wide emergency response planning. Prior to opening new segments of the rail system, training sessions and familiarization exercises are conducted for all emergency-response agencies in the new segment.

SDTI's progressive exercise program has the commitment of internal staff and emergency-response agencies to utilize a building block approach in which training and activities focus on specific capabilities in a cycle of escalating complexity. This program allows the collective community to achieve and maintain competency in executing the transportation and local-emergency response plans. MTS has a Continuity of Operations Plan to ensure that critical functions continue following an emergency.

SDTI's emergency-response policies and procedures are reviewed annually and updated as needed. The System Safety Manager is responsible for coordinating this review and producing updated policies and procedures with input from SDTI staff.

1.4.1 Exercises and Drills

The Safety and Transit Enforcement Departments organize major emergency response drills and exercises that simulate terrorist activities and catastrophic incidents requiring multijurisdictional response. These aid the agency in assessing and validating policies, plans, procedures, training, equipment, assumptions, and interagency agreements. MTS uses the Homeland Security Exercise and Evaluation Program (HSEEP) as it provides a standardized policy, methodology, and terminology for exercise design, development, execution, evaluation, and improvement planning.

Emergency drills are held periodically and are scenario based when identifying locations on the system. Prior to any drill, meetings with external agencies regarding the emergency-management program are held. The FTA provides funding to SDTI to develop and conduct major drills. Typical drills may include mass casualties, fires, derailments, active shooters, or suspicious devices. Drills are designed to exercise competency in emergency situations.

Following a drill, a post-drill debriefing is convened with representatives from all participating agencies to review the performance of the drill and to identify lessons learned. These findings are documented in drill reports or after-action reports and matrices. The post-drill briefing comments are included in a final summary report to management that includes areas needing fire and life-safety improvements and corrective actions. The SDTI Safety and Security Departments track corrective actions to resolution.

1.4.2 Internal Emergency Training

MTS's emergency preparedness program focuses on staff development and training using drills and exercises to assess current practices and procedures. MTS hosts US Department of Transportation (USDOT) Transportation Safety Institute (TSI) and National Transit Institute (NTI) courses and encourages staff participation to the extent possible and appropriate. As necessary, MTS also partners with contractors to facilitate advanced training, exercises, and drills. All emergency-response procedures are found in the Operating Rules and Standard Operating Procedures Manual and in the MTS Emergency Management Plan. These procedures are included in the Transportation Department's Standard Operating Procedures Manual. These documents are distributed to employees as they are updated. The following situations are addressed in the above-referenced documents:

- Emergency occurrences
- Emergency shuttle bus service
- Operation of LRV silent alarm
- Earthquake emergency procedures
- Hazardous materials
- Emergency radio calls
- Emergency call list
- Fire on a train
- Derailment
- Hijacking
- Passenger emergency alarm
- Civil unrest
- Sick person on or near SDTI property
- Collisions and Safety Events
- Emergency removal of power
- Fire on or near track
- Bomb threat
- Criminal incidents
- SDSU fire management panel, emergency ventilation operation panel, and trespasser intrusion system

1.4.3 Emergency Responder Familiarization

SDTI performs safety training with personnel from emergency-response agencies within jurisdictions through which the trolley operates. First responder personnel, such as fire and law enforcement, from the County of San Diego and the cities of San Diego, La Mesa, El Cajon, Santee, National City, and Chula Vista are provided with basic information of the SDTI system, equipment, and operations during the training provided by the System Safety Manager and the Transportation Training Department. Function-specific training and exercises are also provided, including:

- Active shooter/tubular assault/sniper (SWAT)
- Heavy lift/extraction (fire departments, urban search and rescue)
- San Diego State University familiarization (fire departments in proximity to the university)

- Field canine enforcement (US Customs and Border Patrol)

This training is available year-round to these agencies, and annual participation is encouraged. Additionally, Maintenance-of-Way Department personnel provide San Diego Fire Department with on-site orientation for unique stations, such as San Diego State University.

1.4.4 Fire Protection

All fire protection systems are verified for conformance with fire protection requirements through the use of emergency drills, inspections, incident Safety Event investigations, and routine testing of fire protection and fire-suppression systems.

1.5 SMS DOCUMENTATION AND RECORDS

1.5.1 Annual Plan Review

The ASP is assessed annually and updated to include corrections and modifications. The System Safety Manager is responsible for coordinating review and revisions.

1.5.2 Revisions and Change Control

Updates to the ASP include changes to operating procedures or environment, or procedures, instructions, or rules affecting safety. These changes are made by the System Safety Manager. The methods and procedures contained in the ASP are applicable to all phases of the rail transit system: planning, design, construction, inspection, preoperational testing, start-up, and revenue service.

1.5.3 Responsible Parties

The System Safety Manager is responsible for initiating and developing the ASP in cooperation with SDTI departments, and MTS and SANDAG project implementation staff, as applicable, with oversight by the CPUC. All changes are approved by the COO-Rail, CEO, and the Board of Directors. Existing SMS processes and procedures are evaluated and modified as necessary in the ASP update.

The current version of the ASP is available to all employees and contractors via the MTS Intranet. The System Safety Officer issues a bulletin to all employees when updates are available.

1.5.4 Regulatory Oversight and Acknowledgement

SDTI will submit its initial Public Transportation Agency Safety Plan (ASP) to the CPUC for review and approval (in accordance with the requirements of CPUC General Order 164-F) before the FTA's July 20, 2020, deadline for submittal of the agency's ASP. SDTI incorporated CPUC comments and issue the revised

ASP for CPUC approval. After receiving CPUC approval of the ASP, CPUC/SDTI will submit the ASP to the FTA in compliance with 49 CFR Part 673, so that The FTA's Certification and Assurance process could be completed on or before the FTA established deadline.

The revised ASP is submitted annually on or before February 15th to meet requirements set forth by the CPUC in GO 164-F. The System Safety Manager is responsible for notifying the CPUC representative of any changes or modifications to the ASP or any significant safety issues. The CPUC representative is responsible for reviewing the ASP to ensure the plan meets the requirements of GO 164-F. All CPUC recommendations to enhance or modify changes in the ASP will be considered and the ASP will be revised accordingly.

1.5.5 Plan Implementation

The ASP focuses on the activities that are required to provide a high level of safety. The ASP elements include the long-term approach to implement Safety Management Systems within SDTI. The ASP also delineates activities to be performed by the Safety Committee to ensure its involvement on a continuing basis.

This ASP outlines the methods to assure that safety is an integral and continuous part of planning, specification, design, test operation, construction, procurement, and disposal activities of rail transit systems. The ASP complies with all state and federal laws and mandates by systematically monitoring all phases of the operation.

MTS has an intranet that includes information on various functions within the agency including safety. A sample page from the Rail Safety Intranet is shown in Figure 5. The MTS Rail Safety Intranet contains a description of policies and procedures that apply to the Safety Management System, including the Safety Management Policy. The intranet is the prime method of communication of how updates or revisions to the Safety Management Policy are communicated to employees.

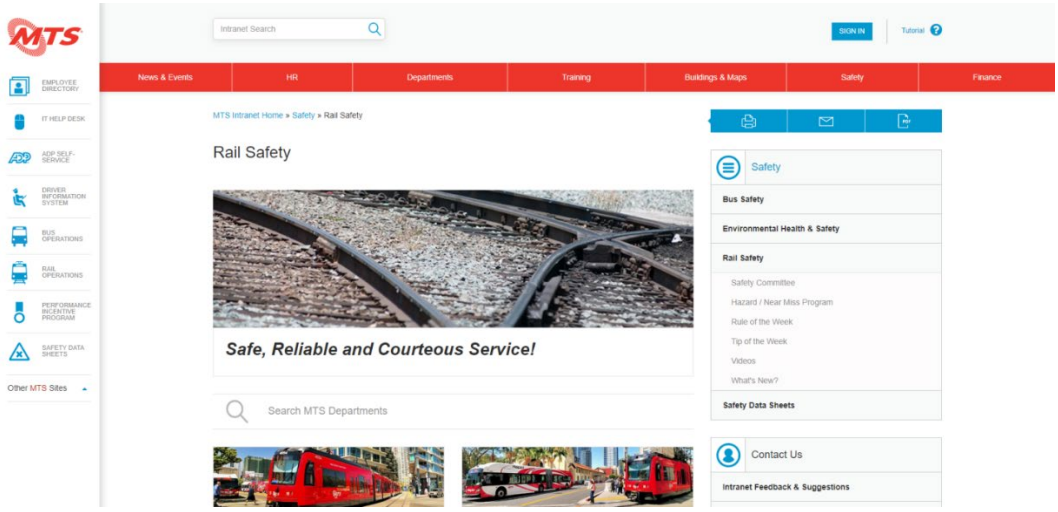


Figure 5: MTS Safety Intranet Page 1

1.5.6 Program Administration

The System Safety Manager has the functional authority, under direction of the COO-Rail, to ensure all employees comply with the ASP and that all operations and maintenance related functions are performed with the intent to conform to safety requirements, including:

- Analysis of rules, procedures, and practices to ensure adequate hazard control including employee safety reporting systems
- Participation in design reviews and planning sessions to ensure that safety concerns and issues are addressed and resolved
- Collection and dissemination of applicable information/practices from other transit properties
- Investigation of serious incidents or Safety Events and assigning responsibility, when applicable, for the purpose of retraining and/or disciplinary action
- Periodic safety inspections
- Determination of cause and recommendation of corrective action to prevent recurrence
- Verification of implementation and effectiveness of corrective action
- Emergency-response agency interface on safety-related matters, including familiarization sessions with SDTI equipment/facilities
- Participation on internal committees (Major Incident Review Committee, Derailment Committee, etc.)
- Interface with NTSB, CPUC, Cal/OSHA, FTA, FRA, and other regulatory agencies

When unsafe conditions or practices exist, the System Safety Manager has the authority, granted by the COO-Rail, to immediately order such conditions corrected or unsafe practices halted. This includes the interruption of revenue service if conditions warrant. The System Safety Manager reviews and evaluates the ASP for program effectiveness. This includes ensuring all departments comply with elements contained herein, adding or deleting work tasks commensurate with the project(s) schedule and budget, and delegating responsibilities, accordingly.

1.5.7 Current Operational Systems

Verification of compliance with SDTI, manufacturer, federal, state, and local requirements is accomplished through:

- Review of incident Safety Event reports
- Performance to established safety goals and safety performance targets
- Investigations of cause and corrective action when appropriate
- Inspection of facilities and equipment
- Management procedures
- Review of operating procedures
- Review of safety rules
- Review of emergency drills

- Occupational safety and health inspections
- Inspection and testing of fire protection equipment

1.5.8 Safety Committee

The Safety Committee is made up of both hourly and supervisory personnel from each of the departments within SDTI. The committees' primary function is to act as a communication channel on safety-related matters between employees and upper management and to provide a forum to discuss issues which impact safety.

Safety Committee members solicit recommendations from employees of their respective departments regarding proposed improvements to enhance safety in the work environment. The Safety Committee discusses, evaluates, and determines if such recommendations are practical and require follow-up. Any suggestions that require fund expenditure is referred to the appropriate department head who, in turn, advises the COO-Rail whether the recommendation should be acted upon. Recommendations are reviewed for possible implementation and the Safety Committee is advised of the decision reached by the COO-Rail. Safety Committee meeting minutes are distributed and posted on all SDTI Bulletin Boards.

In accordance with the requirements of the Bipartisan Infrastructure Law, the Safety Committee will consist of members from the Joint Safety Committee, union-selected frontline voting members, and an equal number of management representatives. These individuals will approve the Agency Safety Plan (ASP) and any updates. The Director of Human Resources will work with the unions representing rail employees to identify the union-selected frontline representatives who will participate in the voting process. The voting members will also review risk-based mitigations and strategies to reduce the likelihood and severity of consequences identified through the agency's risk assessment. This includes assessing methods that may be ineffective or inappropriate and identifying safety deficiencies for continuous improvement. Additionally, the committee will focus on strategies to decrease the number and rate of Safety Events, injuries, and assaults on transit workers, drawing insights from MTS Rail incidents and data from the National Transit Database (NTD).

1.5.9 Monthly CEO Safety Briefing

Every month the System Safety Manager provides a rail safety briefing to the SDTI CEO. Topics include but are not limited to Safety Events, outside inspections, recent CPUC activity, training, Safety Committee meetings, Rail Operation and Regulatory (ROAR) Committee, major projects, regular duties, right-of-way, security, and any high-level safety risks and/or safety meetings that have been conducted or are ongoing. In addition, on a case-by-case basis, the CEO will meet with the CSO to discuss individual incidents, policies, or other concerns and programs related to safety.

1.5.10 Weekly Executive Safety Briefing

Every week the System Safety Manager provides a rail safety briefing to the MTS COO-Rail. Topics include, but are not limited to:

- CPUC activity
- Safety Committee update
- Incident Safety Event investigative follow-up

1.5.11 General Awareness Program

SDTI, in cooperation with SANDAG, may develop and conduct safety-awareness programs for local schools, community groups, and the media. These programs increase public awareness of issues related to safety on the system.

1.5.12 Incentive and Correctional Programs

A safety award program and an employee excellence award program has been established to reward employees annually based on safe behavior, Safety Event-free operation, personal injuries, and attendance. Award recipients are invited to a public ceremony.

1.5.13 Documentation and Retention of SMS Documentation

The documents required to implement the SMS program are maintained within MTS for a period of no less than four years. The SMS documents contain record of revision as applicable and are maintained within individual department record systems.

During the course of developing the SMS there may be additional processes and procedures required that are not included or referenced in the ASP. The processes and procedures will be further developed by the responsible parties designated within the agency with the involvement and participation of representatives assigned to the safety department. As applicable new SMS policies and procedures will be included or referenced in the revised ASP during the annual review.

Upon request the CPUC, FTA, and other Federal entities will have access to review any SMS documentation that is maintained MTS.

2.0 SAFETY RISK MANAGEMENT

Safety is integrated into design, specification preparation, equipment selection, construction, procedures, and operations. The Safety Risk Management process is intended to verify that identified hazards have been satisfactorily documented, tracked, and resolved through a risk mitigation and resolution process. Hazards are continually identified during the development of a project and during ongoing rail operations. As specified in a project's safety and security certification plan (see Section 3.2.2), SDTI, MTS, and SANDAG project implementation staff (under the direction of SDTI and CPUC), as applicable, apply methods of hazard identification, assessment, and resolution to minimize or eliminate Safety events and injuries. The Safety Risk Management process also applies to SDTI's existing operations and maintenance procedures, changes to the existing SDTI rail public transportation system, new operations of service to the public, new operations or maintenance procedures, and any organizational changes.

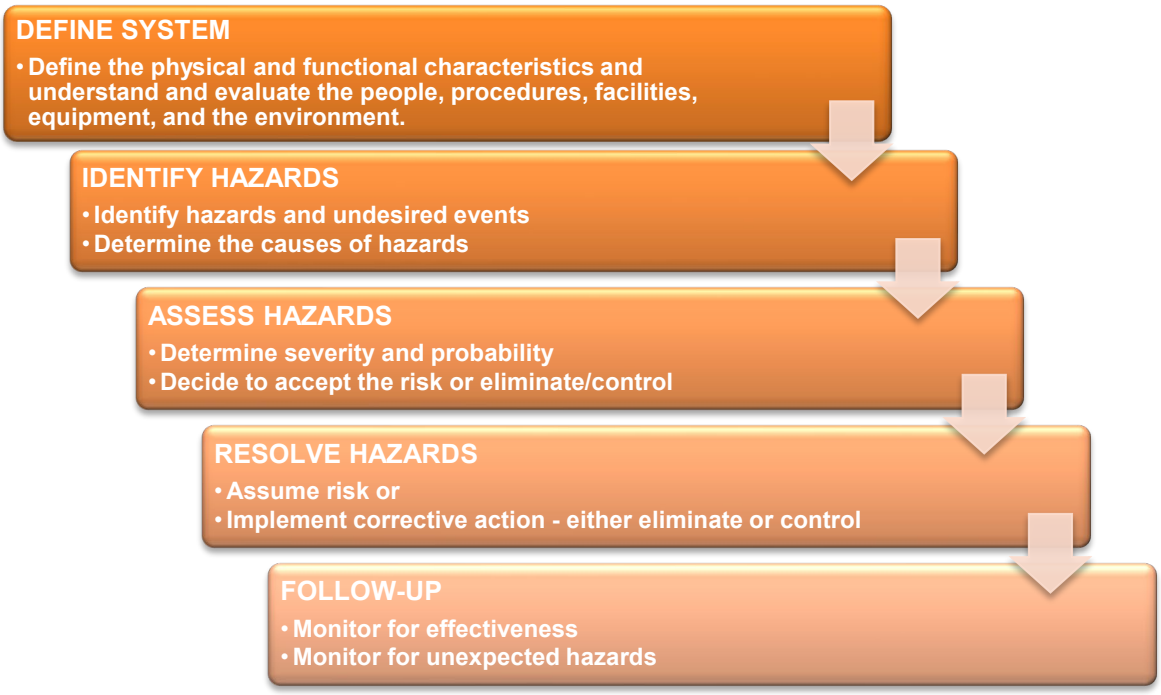


Figure 6: Safety Risk Management Process

SDTI, MTS, and SANDAG project staffs, as applicable, work to identify areas and situations prone to a high frequency of incidents and Safety Events through existing system inspections and evaluation, reviewing trends, comparative analysis, and evaluating available data. Safety analyses are part of a formalized process to identify, eliminate, and/or control hazards. Safety analyses provide for:

- Identification of hazards
- Assessment of the severity and probability of occurrence of the hazard
- Timely awareness of hazards for those who must resolve them
- Traceability and control of hazards through all phases of a system's life cycle

Analysis results assist team members in understanding the causes of occurrences and ensure appropriate corrective action. Variables determined as significant contributing factors to the frequency of incidents become a focal point for review and evaluation to determine appropriate corrective action.

Safety Risk Management is performed using a decentralized process. Hazards are assessed and evaluated by the operating departments (transportation and maintenance) with assistance from the System Safety Manager.

The Safety Risk Management process feeds into the Safety Assurance process so that safety risk mitigations are evaluated for effectiveness over time. Feedback between the two processes is essential to ensure that risk mitigation does not introduce additional hazards. MTS uses safety data acquisition to monitor what occurs within the system. If the hazard reoccurs, then the mitigation will be adjusted.

2.1 SAFETY HAZARD IDENTIFICATION

2.1.1 Hazard Identification

Defining the physical and functional characteristics of a project creates the foundation of the hazard identification process. These characteristics are presented in terms of the major elements that comprise the project, such as personnel, facilities, systems, equipment, procedures, the public, and the environment. The perceived hazards are identified using several techniques, including the following:

- Historical hazard or Safety Events data
- Operational experience and lessons learned
- Identification of credible hazard scenarios
- Checklists of potential hazards
- Hazard analyses
- Employee Safety Reporting System
- Data provided by the FTA
- Data provided by the CPUC
- Input from vendors, suppliers, and subcontractors
- Input from project staff and engineering/construction consultants
- Other methods as appropriate.

Identified hazards are tracked in the Hazard Management Master File (an Excel database). Information collected includes the following:

- Date reported
- Reported by
- Form completed
- Reported to
- Hazard description
- Severity
- Probability
- Responsible party

- Potential mitigation(s)
- Final mitigation(s)
- Risk score after mitigation
- Completed by
- Completion date

2.1.2 Safety Risk Assessment

A hazard analysis should be performed on all facility modifications and new construction projects. Hazard analysis is a risk assessment of the safety and security of a project with regard to known hazards. The purpose of hazard analysis is to assess the severity and probability of the risk associated with each identified hazard. Severity and probability generally are determined based on qualitative rather than quantitative analyses. The results and conclusions of the analyses of identified hazards, assessed in terms of severity or consequence and the probability of occurrence, are presented by the responsible party in accordance with standard methods (such as MIL-STD-882D, MTS ASP, FTA Hazard Analysis Guidelines, and 49 Code of Federal Regulations Part) and as specified in contract documents.

To classify the assessment, hazards identified in formal hazard analyses receive a classification based on the definitions that follow. Unacceptable and undesirable hazards are mitigated to an acceptable level by one or more of the above-described methods.

Hazards identified in the Hazard Management Master File also receive a classification based on the definitions that follow.

2.2 SAFETY RISK MITIGATION

Hazard assessments determine whether assuming some or all of the risk associated with a particular hazard is acceptable and whether corrective action is called for. Hazard assessment involves hazard severity, hazard probability, and risk assessment. The following definitions are used to establish Hazard Severity and the Probability of Occurrence. The Risk Assessment Matrix is used to categorize hazards as acceptable, acceptable with certain conditions applied, undesirable, or unacceptable.

2.2.1 Hazard Evaluation

Hazard severity is a subjective measure of the worst credible mishap expected to result from human error, environmental conditions, design inadequacies, subsystem or component failure or malfunction, and/or procedural deficiencies. The categories of hazards are as follows:

Table 1: Hazard Severity

CATEGORY	DESCRIPTION
1. Catastrophic	Death or system loss
2. Critical	Severe injury, severe occupational illness, or major system damage
3. Marginal	Minor injury, minor occupational illness, or minor system damage
4. Negligible	So small or of so little consequence that it requires little to no attention

Hazard probability is the likelihood that a specific hazard will occur during the planned life expectancy of the system element, subsystem, or component described subjectively in potential occurrences per unit of time, events, population, items, or activity. The Hazard Probability in Table 2 is derived from research, analysis, or evaluation of historical data.

Table 2: Hazard Probability

DESCRIPTION	LEVEL	LIKELIHOOD	EXAMPLE OF FREQUENCY
Frequent	A	Continuously experienced	One or more times per week during a four week period
Probable	B	Occurs or may occur often	One or more times per month during a four month period
Occasional	C	Will likely occur several times during the system's lifecycle	One or more times per year on an annual basis
Remote	D	Potential to occur during the system's lifecycle	Once per decade
Improbable	E	Is unlikely to occur, but possible	Less frequently than once per decade

After hazard severity and probability are determined, associated risks are assessed by project implementation staff and the Safety & Security Review Committee (see Section 3.2.2.7). A risk assessment determines the level of risk associated with a hazard. It enables understanding the risk in relation to the costs (in dollars or operational impact) that may be incurred. The Risk Assessment Matrix in Table 3 identifies the risk assessment based on hazard severity and probability.

Table 3: Risk Assessment Matrix

FREQUENCY OF OCCURRENCE	CATASTROPHIC (1)	CRITICAL (2)	MARGINAL (3)	NEGLIGIBLE (4)
Frequent (A)	**1A**	**2A**	**3A**	**4A**
Probable (B)	**1B**	**2B**	**3B**	**4B**
Occasional (C)	**1C**	**2C**	**3C**	**4C**
Remote (D)	**1D**	**2D**	**3D**	**4D**
Improbable (E)	**1E**	**2E**	**3E**	**4E**

Table 4 relays the criticality of implementing corrective measures to reduce the hazard to an acceptable level. Projects use this index to prioritize hazardous conditions and to focus resources on the most serious hazards requiring resolution.

Table 4: Criticality Index

RISK INDEX	CRITERIA	CORRECTIVE ACTION
1A, 1B, 1C 2A, 2B, 3A	Unacceptable	Hazard cannot remain as is; must be mitigated.
1D, 2C, 2D, 3B, 3C	Undesirable – decision required	The hazard should be mitigated, if at all possible, within fiscal constraints. This level of risk must involve a documented decision by executive management, and it may be mitigated at a later time.
1E, 2E, 3D, 3E, 4A, 4B	Acceptable - with review	The Safety & Security Review Committee must determine if the hazard may remain.
4C, 4D, 4E	Acceptable - without review	The hazard may remain.

2.2.2 Hazard Mitigation

The Hazard Resolution and Control process involves the analysis and corrective action(s) taken to reduce the risk of an identified hazard to the lowest practical level. The order of precedence, which follows, are used for satisfying system safety requirements and resolving identified hazards.

Design for Minimum Risk	Design new facilities and equipment to eliminate hazards. If an identified hazard cannot be eliminated, reduce its associated risks to an acceptable level through the design selection.
Incorporate Safety Devices	If an identified hazard cannot be eliminated or its associated risk cannot be reduced through design selection, reduce that risk to an acceptable level by using protective safety features or devices. Provide, and issue procedures for, periodic inspection and functional checks of safety devices.
Provide Warning Devices	When neither design nor safety devices can effectively eliminate identified hazards or reduce risk to an acceptable level, use warning devices to detect the condition and produce an adequate warning signal to alert individuals to the hazard. Standardized warning devices minimize the probability of persons reacting incorrectly to these warnings.
Develop Special Procedures	When it is impossible or impractical to eliminate hazards through design selection or adequately reduce associated risks through safety or warning devices, then use approved procedures and special training programs. Procedures may include the use of personal protective equipment. Precautionary notations and warning signs must be standardized. Employees who perform safety-critical tasks require certification of proficiency and periodic recertification.

Typically, hazards are controlled by more than one corrective method. The use of warning, caution, and other forms of written advisories alone to control Category I (Catastrophic) and Category II (Critical) hazards will be carefully reviewed to ensure that no other additional measures are possible.

If a new light rail extension or capital improvement project is determined not to contain significant hazards, the SANDAG Project Director may request a determination of “no significant potential for hazard” for the segment(s) from the COO-Rail. The COO-Rail may approve or deny the request.

Hazards identified by employees are tracked in the Hazard Management spreadsheet. Proposed mitigations are discussed in monthly Safety Committee meetings and documented in meeting minutes. The minutes posted on the agency intranet provide feedback on hazard mitigation and strategy.

2.3 HAZARD NOTIFICATION TO CPUC

If the System Safety Manager determines that an unacceptable hazardous condition exists (according to the Criticality Index), the System Safety Manager will notify the CPUC staff within two hours as required by GO164-F. The System Safety Manager or designee maintains a hazard tracking spreadsheet that identifies the hazard, status of hazard (open or closed), recommendations for corrective action, person or department responsible for corrective actions, and scheduled date of completion. The System Safety Manager is responsible for tracking open status items to resolution as required by GO164-F.

MTS will also submit any CAPs developed to minimize, mitigate, control, correct, or eliminate the identified risks and hazards. The CAPs will include description, immediate mitigation (if needed), origin of hazard, the proposed actions, permanent hazard resolution, or temporary mitigation if necessary, the responsible individual or department, and the schedule for implementing those actions for the identified hazard, including date the hazard was identified and closed, and hazard resolution verification/follow-up activities, all in accordance with Commission GO 164-F, Section 9.

3.0 SAFETY ASSURANCE

Safety assurance ensures that MTS implements appropriate and effective mitigations and monitors the safety performance of SDTI. Safety assurance also helps assess changes to see if the changes affect the safety of operations.

Safety assurance includes three subcomponents:

1. Safety Performance Monitoring and Measurement
2. Management of Change
3. Continuous Improvement

3.1 SAFETY PERFORMANCE MONITORING AND MEASUREMENT

There are many ways that SDTI monitors safety performance including:

- Monitor service delivery activities
- Monitor employee safety reporting programs
- Monitor operations and maintenance data
- Conduct safety audits, studies, reviews and inspections
- Conduct safety investigations
- Conduct safety surveys
- Evaluate data and information from external agencies

The FTA, in the National Transportation Safety Plan, has established safety performance, criteria and state of good repair standards that all transit agencies must meet. This Agency Safety Plan includes safety performance objectives that meet or exceed the required safety performance criteria and state of good repair standards. The Trolley is the best.

SDTI currently produces many forms of indicators that get reported to levels within MTS and SDTI and also to the CPUC and the FTA. In accordance with the requirements of the FTA's National Public Transportation Safety Plan. The Bipartisan Infrastructure Law of 2021 requires transit agencies to develop a risk reduction program to improve safety by reducing the number and rates of Safety Events, injuries and assaults on transit workers based on data submitted to the National Transit Database (NTD). SDTI risk reduction program addresses safety performance in the following Five categories:

- Fatalities: the total number of reportable fatalities and rate per total unlinked passenger trips by mode
- Injuries: the total number of reportable injuries and rate per total unlinked passenger trips by mode
- Safety Events: the total number of reportable events and rate per total vehicle miles by mode
- System Reliability: mean distance between failures by mode
- Transit Worker Assaults

SDTI's monitoring and assessment programs enable the agency to identify any safety risk mitigations that are ineffective, inappropriate or have not been implemented as originally intended. The System Safety Manager works with the appropriate departments

to reassess and document inadequate safety risk mitigations. New proposed mitigations are discussed with the Accountable Executive and implemented. The System Safety Manger informs the CPUC of these actions.

3.1.1 Safety Performance Measurement

3.1.1.1 Safety Performance Measure: Fatalities

SDTI is committed to reducing the number of fatalities to zero and partners with community outreach efforts to attain this goal. The calendar year (CY) performance target for total fatalities and total fatalities rate per 100,000 revenue miles is to achieve a reduction compared to the previous three CY average. A National Transit Database (NTD) reportable fatality is a death due to collision (including suicides), derailment, fire, hazardous material spill, acts of God, system or personal security event (including suicides), or other safety event. An NTD reportable fatality does not include fatalities that occur because of illnesses or other natural causes (including individuals who are found deceased).

3.1.1.2 Safety Performance Measure: Injuries

Any harm to persons that requires immediate medical attention away from the scene because of a reportable event is considered to be a reportable injury. SDTI reports to the National Transit Database (NTD) anytime a person is transported away from the scene for medical attention as an injury, whether or not the person appears to be injured.

In addition to injuries requiring transport from the scene, injuries defined as serious are automatically reportable. Individuals with serious injuries may or may not have been transported away from the scene for medical attention. A serious injury is one that:

- Requires hospitalization for more than 48 hours within 7 days of the event
- Results in a fracture of any bone (except simple fractures of fingers, toes, or nose)
- Causes severe hemorrhages, or nerve, muscle, or tendon damage;
- Involves an internal organ
- Involves second- or third-degree burns, or any burns affecting more than five percent of the body surface

The CY performance target for total number of injuries and injury rate per 100,000 revenue miles is to achieve a reduction compared to the previous three CY average.

3.1.1.3 Safety Performance Measure: Transit Worker Assaults

Assault on a transit worker is defined as an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with, disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

3.1.1.4 Safety Performance Measure: Safety Events

The safety events measure captures events meeting NTD reporting thresholds occurring on SDTI right-of-way or infrastructure, at a revenue or maintenance facility, rail yard, during the performance of maintenance activities or involving a transit revenue vehicle. The NTD reporting thresholds include fatalities, injuries requiring immediate medical attention away from the scene, derailment, substantial damage, and evacuation for life safety reasons.

The CY performance target for total number of safety events and safety events rate per 100,000 revenue miles is to achieve a reduction compared to the previous three CY average.

3.1.1.5 Safety Performance Measure: System Reliability

The system reliability measure expresses the relationship between safety and asset condition. The rate of vehicle failures in service, defined as mean distance between major mechanical failures, is measured as vehicle revenue miles operated divided by the number of major mechanical failures. SDTI continues to invest and plan for a highly reliable, safe operation of its public transportation system. As SDTI introduces new vehicles, there is a burn-in period for the vehicles that may result in a decrease of reliability. As such, SDTI will strive to maintain current system reliability targets during this time period.

The CY performance target for system reliability rate is to achieve a reduction compared to the previous three calendar years' average. SDTI system reliability targets are calculated using a three-year average of the mean distance between failures per 100,000 revenue miles.

3.1.1.6 Safety Performance Measure: Other

SDTI also develops specific performance targets for individual functional areas, including various departments within the agency (administration, facilities, LRV maintenance, maintenance of wayside, track, rail operations, transportation, safety, environmental health).

These include, but are not limited to:

- Safety related rule infractions
- Roadway worker protection violations
- Workplace inspection findings
- Near miss report frequency

- Employees attending safety meetings

SDTI also produces an emergency brake log.

These indicators and targets are developed jointly with safety working with each involved department and with the approval of the Accountable Executive of Rail. These performance targets and indicators are included in weekly COO Rail briefings by the Safety Department and in monthly CEO safety briefings, as well as to relevant members of the Board of Directors.

3.1.1.7 Safety and State of Good Repair

The State of Good Repair (SoGR) standards are defined by the National Safety Program and National Transit Asset Management (TAM) System, found in 49 CFR Part 625. These set forth conditions when safety risk analysis must be performed on capital assets such as equipment, rolling stock, infrastructure, and facilities. SDTI documents safety performance objectives in the TAM plan based on this definition and makes informed investments in order to strive for a SoGR for all assets.

3.1.2 Annual Safety Performance Report and Coordination with Stakeholders

SDTI disseminates and makes available safety performance targets to the FTA, CPUC, SANDAG (MPO) and other stakeholders to aid in the planning process. SDTI coordinates safety performance targets with stakeholders to the maximum extent practicable to assist with the selection of safety performance targets.

3.1.3 Safety Data Acquisition and Analysis

3.1.3.1 Safety Data Analysis

The System Safety Manager analyzes data to assist in maintaining a safe work environment for all employees. Analysis of data may result in a recommendation for corrective action. The principal approach used in achieving ASP goals and objectives are accomplished by charging all SDTI personnel with safety and the implications of their decisions. SDTI uses a proactive approach that stresses review of systems and the proposal of modifications to these systems from a safety perspective before losses occur. The ASP also requires employees to examine the affect that their actions may have on safety of other interrelated systems. All personnel are responsible for ensuring that safety-related tasks meet and are in compliance with the guidelines set forth in the ASP.

All SDTI personnel are responsible for working safely and following established rules, procedures, policies, and safe-work practices. The intent of this section is to provide a description of ASP responsibilities that, when fulfilled, will assist SDTI’s efforts in achieving optimal safety. Specific procedures and responsibilities are listed in procedure manuals, rule books, plans, program manuals, policies, and other controlling documents. Each SDTI department is

responsible for implementing and maintaining the procedures of the ASP pertaining to that department.

Personal Injuries

Personal injury reports are completed by Line Supervisors or Controllers and submitted to the System Safety Manager for inclusion in the Personal Injury Master Database.

The following elements of every injury are tracked:

- Date
- Line segment
- Location and location type
- Individual type (passenger, employee, trespasser, other)
- Area(s) injured
- Action (means of injury)
- If the injured party was transported
- If there was a fatality
- Train operator involved, if applicable, for evaluating potential trends with operating style

Personal injury reports are collected for on-train Safety Events, such as fall on start/stop, boarding/alighting, etc.; in transit facility Safety Events including slips, trips, and falls; along with collision reports; and in nonrevenue facility Safety Events, such as on the right-of-way or on SDTI property (maintenance facilities or yard).

Accidents/Incidents

If an LRV collides with vehicles, people, or objects, Safety Event reports are completed by a Line Supervisor. Safety Event investigation information is discussed in detail in Section 3.1.2. As with personal injuries, collision reports are submitted to the System Safety Manager to be entered into the Master Safety Event Database.

The following elements of every incident are tracked to the extent possible based on available information:

- Date and time
- Train operator
- Location
- Incident type
- Highway user (auto, motorcycle, bicycle, pedestrian, other)
- Position (red light, stop sign, left turn, stopped and then proceeded, did not stop, around/through gate, fouling tracks, intentional, into path, coupler related, other)
- Circumstance (highway user struck train, train struck highway user)
- Risk assessment
- Number of injured parties or fatalities

- Video locator
- Line segment
- Direction (eastbound, westbound)
- Consist of (LRV #s)
- Primary involved (generally lead) LRV and cost of repairs
- Secondary involved LRV, if applicable, and cost of repairs
- CPUC crossing number
- Geolocations (latitude, longitude)
- Fiscal year
- Investigating supervisor
- Weather conditions (clear, rainy, fog, windy, dry, wet, slick)
- Visibility (dawn, daylight, dusk, dark, streetlights)
- Traffic control/protection (traffic signal, control zone, crossing gates, stop sign)
- Horn(s) used (LRV horn, federal horn, or no time for horn)
- Brake (dynamic, emergency, no time for brake)
- LRV lights (auxiliary, bright, dim)
- Designated and estimated speeds
- System check
- Operator 10-58
- Fire suppression
- Passenger evacuation
- 2+ injured on train
- Transported for treatment
- Regulatory reporting (CPUC, FRA, FTA/NTD)
- Days since last Safety Event

Emergency Brake Applications

When an emergency brake application occurs, it is logged by Central Control. As with Safety Events/incidents, emergency brake application logs are submitted to the System Safety Manager to be entered into the Emergency Brake Log Master Database. The following elements of every application are tracked to the extent possible based on available information:

- Date and time
- Train operator involved, if applicable, for evaluating potential trends with operating style
- Train #
- Line segment
- Direction (eastbound, westbound)
- Consist of (LRV #s)
- Geolocations (latitude, longitude)
- Highway user (auto, bicycle, pedestrian, child, animal, object, other)
- Reason (red light, stop sign, left turn, stopped and then proceeded, did not stop, around/through gate, fouling tracks, intentional, into path, coupler rider or similar, penalty)

This information is evaluated to determine trends in location, cause, and train operator. This information may also be used in Safety Event reviews.

Comparisons of Monthly, Annual, and Historic Safety Event Rates

A monthly Safety Event summary is distributed to management personnel and posted on company bulletin boards. Annual and historic statistics including cause, location, and highway user, are posted on company bulletin boards and used internally. This information is also available in map form (thermal, by type, maps).

Near-Miss and Hazardous Conditions

SDTI Rules and Instructions for Employees require all employees to report hazards to their supervisor or employee-in-charge (whether they were involved in, or observed, the event or condition) on the same day or as soon as practicable. Employees should report these on the Hazard/Near-Miss Form. The supervisor or employee-in-charge will attempt to immediately correct any hazard that is within their ability to affect. The System Safety Manager, in conjunction with the appropriate department head(s), conducts a subsequent investigation. All incidents are tracked for analysis and identification of trends.

Near-miss reporting allows employees an opportunity to report near-miss incidents involving employees or contractors working along the right-of-way. This program is for all employees, particularly operations personnel. Reports of near-miss incidents and other safety concerns allow management to identify, evaluate, correct, or avoid hazardous conditions, procedures, or equipment that may adversely affect the safety of all employees.

Risk Based Inspection (RBI) Program

CPUC's RBI requirements and protocols established in accordance with Special Directive 22-25 requirements are contained in the RTSB Program Standard in Section 1.5.0 – Inspection of Rail Transit Agencies and Section 1.6.0 – Record Reviews, collection, and Analysis.

MTS acknowledges the Commission's authority for developing the RBI processes and procedures in Sections 1.5.0 and 1.6.0 and will incorporate these requirements as the required RBI procedure applicable in California into our Agency Safety Plan.

MTS complies with the authority of the CPUC by providing timely responses, data requests, records requests, and assistance while on MTS property. MTS works in partnership with the CPUC on Safety Certification, Event Reports, System Modifications, and construction consultations. MTS recognizes CPUC's authority outlined in the Public Utilities Code and other state laws, and all MTS employees are required to comply with CPUC representatives performing regulatory oversight in accordance with those laws.

3.1.3.2 Incident/Safety Event Notification, Investigation, and Reporting

When notifications are necessary, the following information should be included:

a. The time and date of the Safety Event/
b. The location of the Safety Event/incident, including the Commission highway-rail grade-crossing number, if applicable
c. The number of fatalities and/or injuries
d. The rail transit vehicles involved in the Safety Event/incident, if any
e. The factor that makes the incident/Safety Event immediately reportable
f. Narrative description of the Safety Event/incident, as known at the time of reporting; and
g. The emergency-response organizations at the scene of the Safety Event/incident
h. Description of the service impact

3.1.3.2.1 SDTI Notifications

Transportation Department Standard Operating Procedure (SOP) 108.10, Emergency Call List identifies all personnel that are notified. The System Safety Manager shall be notified immediately by the Operations Control Center Supervisor or designee of all rail Safety Event/incidents. The System Safety Manager responds and investigates Safety Events/incidents whenever practicable in accordance with SDTI Safety Event investigation procedures.

3.1.3.2.2 Safety Event, Derailment, Power Failure, Serious Injury, Fatality

In the event of a train Safety Event, derailment, or long-term power failures resulting in major service loss, serious personal injury or fatality, SDTI or SD&IV related, the following notifications must be made immediately:

1. MTS CEO (only be made for those incidents involving significant property damage or fatal injuries, or as directed by the COO-Rail or Director of Rail Transportation)
2. COO-Rail
3. Director of Rail Transportation
4. Director of LRV Maintenance
5. Director of Wayside Maintenance
6. Manager of Rail Transportation
7. Manager of LRV Maintenance
8. Manager of Wayside Maintenance
9. System Safety Manager
10. Central Control Supervisor
11. Director of Transit Security & Passenger Safety
12. Assistant Central Control Supervisor
13. MTS Risk Management

3.1.3.2.3 Minor Safety Event/Injury

When Safety Event or injury is of a minor nature and occurs after normal business hours or on weekends, the same notifications must be made, but discretion must be used as to the time such calls are made.

3.1.3.2.4 Regulatory Notifications

The following identifies the thresholds that incidents must meet to be reported to regulatory agencies.

California Public Utilities Commission

CPUC staff is notified within two hours of rail Safety Events that meet the immediately reportable thresholds, as defined in GO 164-F Section 7.2 as follows:

a. A fatality (occurring at the scene or within 30 calendar days following the Safety Event)
b. Two or more injuries
c. A derailment
d. A collision resulting in disabling damage to a rail transit vehicle
e. A collision resulting in one or more injuries
e. A collision involving a rail transit vehicle and any other vehicle or individual not resulting in one or more injuries or disabling damage to a rail transit vehicle
f. Collision between two rail transit vehicles
g. Evacuation for life and safety reasons
h. Unintended train movement
i. Criminal actions that result in fatalities or injuries, such as homicides and assaults

Federal Transit Administration/Federal Railroad Administration

The Federal Transit Administration (FTA) requires concurrent notification for all immediately reportable Safety Events as outlined in GO 164-F Section 7.4.

The Federal Railroad Administration (FRA) is notified within two hours of rail Safety Events that occur on joint or shared use segments and meet the established criteria as follows:

a. An incident that results in a fatality or fatalities
b. Causes serious injury to a number of people
c. Results in a major disruption to SDTI service
d. A threat that may cause injury to patrons or destruction of facilities

The FTA Region IX office and FRA Region VII headquarters must also be notified using the above criteria as well as any other Safety Event that could impact transit and/or generate public or media attention.

National Transportation Safety Board

Train Safety Events and incidents meeting the following established criteria must be reported within two hours:

- Fatalities or injuries of a critical nature (requiring hospitalization) or two (2) or more employees or passengers
- Fatalities at grade crossing (trespassers not included)
- Evacuation of passengers resulting from an onboard fire or other hazardous condition that would require the dispatching of a fire-suppression unit to mitigate

3.1.3.2.5 Incident Investigations

The incident investigation and review process will involve the following, as appropriate:

- Interviews and questioning of persons directly or indirectly involved in the Safety Event
- Visual examinations, measurements, and test of light rail vehicle, track, switches, signals, and other similar items
- Operational reenactments simulating conditions that applied when the Safety Event happened
- Review of results of drug and alcohol tests
- Examination of employee training, certification, and re-certification records
- Assessment of employee hours of service records
- Review of light rail vehicle maintenance records
- Examination of wayside equipment maintenance records
- Evaluation of Train Operator and Controller communication recordings
- Review of light rail vehicle and wayside data/event recorder logs
- Examination of operating rules, general notices, procedures, and bulletins
- Review of law enforcement and coroner reports, including reports of similar Safety Events

3.1.3.2.6 Securing Evidence for Investigation

Standard Operating Procedure (SOP) 106.11: Safety Event Investigations Involving LRV/Auto or LRV/Pedestrian identifies the duties and responsibilities when an Safety Event occurs as follows:

- Train Operator distributes witness cards and makes an initial effort to identify other individuals, either onboard or in immediate proximity, who may have witnessed the incident.

- After arrival at the scene, the Line Supervisor should arrange to mark the point of impact (POI), uncontrolled point of rest (POR) of the train and other party, photograph property damage of all vehicles or fixed structures involved; the license plate of any non-trolley vehicle involved,

and any other relevant items. The Supervisor should arrange to obtain the Train Operator's name and employee number, and other information as may be helpful in completing an appropriate Safety Event report, i.e., direction of travel, train and car numbers, speed at time of Safety Event, etc. In all cases, the Line Supervisor will complete an internal Safety Event report using the above information.

In order to maintain the preservation and integrity of evidence, the Line Supervisor should include the following methods of collection:

- Photography
- Interview of personnel and witnesses
- Measurements and drawings
- Debris collection
- Drug test for involved employees

3.1.3.2.7 Causative Factors

The following causative factors are evaluated at the scene:

- Equipment and infrastructure
- Human factors
- Weather conditions
- Geography
- Position and status of signals
- Switches
- Annunciators
- Track wheels
- Emergency brakes
- Sand
- Point of rest of involved vehicle

3.1.3.2.8 Minor Property Damage (No Injuries)

Law enforcement, as normal procedure, will not generally respond to a noninjury Safety Event. They are, however, notified. This notification is reflected on the Unusual Occurrence Report. Law enforcement should be requested if the collision involves a government vehicle, a hit-and-run incident, if the driver appears to be intoxicated, or if injuries are reported.

3.1.3.2.9 Minor Injuries

In collisions involving minor injuries to the occupants or pedestrians and/or property damage only, the Line Supervisor arriving at the scene represents SDTI in the exchange of information between the involved parties and ensures that any statements regarding the collision are recorded in written form from all involved parties or witnesses.

If law enforcement has not arrived by the time all pertinent information is obtained, the Line Supervisor has authority to release the train. If law enforcement personnel arrive after this time, the Line Supervisor represents SDTI by providing or exchanging any additional information.

3.1.3.2.10 Moderate or Severe Injuries

In collisions involving moderate or severe injuries, responding law enforcement may conduct full Safety Event investigations or file incident reports. The responding Line Supervisor prepares a detailed Safety Event report regardless of the actions of law enforcement but takes all steps necessary to work in unison with responding agencies in the exchange of information, and respects potential crime scenes as under authority of law enforcement.

3.1.3.2.11 California Public Utilities Commission Participation in Investigations

The CPUC has primary responsibility within the State of California for oversight of SDTI Safety Event investigations and the System Safety Manager is the primary contact for the CPUC-designated representative assigned SDTI. The System Safety Manager is responsible for providing CPUC staff an opportunity to participate to the fullest extent possible in all aspects of the Safety Event investigation, including providing advanced notification of interviews, inspections, examinations, tests, and meetings with consultants, review boards, etc. to review and analyze Safety Event-related information.
In the event that the CPUC produces an investigation report, SDTI will review the report and identify any areas of dissent and agrees to provide a response to the CPUC within prescribed timelines as defined in GO 164-F.

3.1.3.2.12 Reviews

The System Safety Manager is responsible for ensuring that the following activities are performed. When reviewing an Safety Event that resulted in a fatality or serious injury, notice shall be given to the CPUC whenever an Safety Event investigation team or panel is convened to perform interviews, inspections, examinations, or tests to determine the cause of the Safety Event. The investigation shall be documented in a written report that identifies the most probable cause and any contributing causes of the Safety Event or unacceptable hazardous condition. The report shall also contain or reference a corrective action plan and schedule to prevent a recurrence of the Safety Event or to mitigate the unacceptable hazardous condition.

3.1.3.2.13 Safety Event Review Committee

In an attempt to minimize Safety Events, SDTI conducts post-Safety Event debriefings with each Train Operator involved in an LRV/auto Safety Event or LRV/pedestrian Safety Event. Safety concerns and defensive driving techniques are reinforced through discussion of individual train-handling techniques, physical characteristics/increase of Safety Events at the location, and previous Safety Events involving the Train Operator. The Safety Event Review Committee typically consists of two Train Operators, one Supervisor, a Transportation Training Supervisor or designee, and the System Safety Manager. This review provides an avenue by which the Safety Event Review Committee and involved Train Operator learn how similar types of incidents may be avoided. Employees found to have violated specific safety rules may be subject to disciplinary measures assessed by the Director of Rail Transportation.

3.1.3.2.14 Major Incident Review Committee

In the event of any unusual occurrence resulting in significant property damage, such as a derailment, significant injuries, or impact to system operations, the Major Incident Review Committee (MIRC) examines the evidence, determines the cause, and evaluates the response by SDTI. Chaired by the System Safety Manager, MIRC members may include personnel from any relevant departments. The Committee examines the effectiveness of current methods to prevent or minimize the potential of a recurrence and, if necessary, recommendations are made on the modification of policies, procedures, or equipment maintenance and operation. If the extent of the Safety Event requires the expertise of outside consultants, a review board, such as American Public Transit Association (APTA), may be called upon to perform the Safety Event review on behalf of SDTI.

3.1.3.2.15 Reports and Documentation

The System Safety Manager is responsible for conducting investigations and preparing investigation reports.

California Public Utilities Commission Reporting

SDTI investigates, on behalf of the CPUC, all reportable Safety Events involving a rail transit vehicle or taking place on rail transit-controlled property. SDTI submits written Safety Event reports on forms prescribed by the CPUC within 30 calendar days after the last day of the month in which the Safety Event occurred. The Safety Department produces one of two different types of reports for CPUC reportable Safety Events, an investigative report or a 60-Day Minor Incident Report. These reports contain findings of the investigation, the most probable cause of the Safety Event, contributing factors, and recommendations for corrective action to prevent a recurrence of the Safety Event. As part of an agreement made by the CPUC and the ROAR Committee in Fall 2007, which was documented in the ROAR Committee Meeting minutes, the Table 5: CPUC Incident Reporting Thresholds was established to identify which of the above two reports will be submitted based on the incident thresholds.

The CPUC has primary responsibility for oversight of the design, engineering, construction, and operation of fixed guideway systems within the state of California. State-mandated rules and regulations which are applicable to safety-related matters are contained in GOs 22-B, 26-D, 33-B, 72-B, 75-D, 88-B, 95, 108, 110, 118, 127, 128, 135, 143-B, 161, 164-F, 172 and 175. SDTI rail segments with shared- or joint-use heavy rail operation and rail segments with light rail-exclusive usage each have a set of general orders applicable to their unique operational characteristics. The System Safety Manager is responsible for confirming that staffs who work on the SDTI system are familiar with all applicable GOs.

Table 5: CPUC Incident Reporting Thresholds

Investigative Report	Event Report
• Fatality (including suicides) • Serious injury to one or more people (does not include persons onboard the train). Serious injury is any injury or illness that requires inpatient hospitalization for a period in excess of 48 hours for other than medical observation, loss of any member of the body, or serious degree of permanent disfigurement. • Substantial Damage • Mainline derailment • Mainline collision between rail vehicles • Evacuation due to life safety	• Non-serious injury to one or more people requiring or requesting transport for medical attention away from the scene • Collision minor/no injury • Yard collisions

If a failure to report an accident within the initial 2-hour notification period occurs, an explanation as to the reason will be included in the investigation report.

SDTI also submits Monthly Safety Event, Hazard, and Corrective Action Summary Report regardless of the number of reportable Safety Events or unacceptable hazardous conditions. These reports are provided to the CPUC representative. The System Safety Manager reports to the CPUC representative.

If an Safety Event is ruled as "suicide" or "attempted suicide," the investigation report shall identify this based upon the review of the Train Operator's report, witness statements, law enforcement reports, and/or coroner’s reports.

If an MIRC is convened to investigate the Safety Event, all team members including CPUC staff shall receive a copy of the final report in draft form. In cases where disagreement exists between team members regarding any aspect of the report, the System Safety Manager exercises ultimate authority. The final report is a Safety Department document.

A corrective action plan is also submitted to the CPUC office for Safety Events that require a recommendation other than internal defensive-driving reinstruction. Corrective actions from Safety Events, MIRC committee meetings, and investigations are confidential and kept with the Safety Department files.

If an Safety Event investigation takes longer than 60 days, status reports will be submitted to the CPUC each month. The first status report is due 60 days after the rail Safety Event.

If the final investigative report is acceptable to the CPUC a formal letter is issued approving the report as consistent with best industry investigation procedures and in furtherance of the public's interest in system safety and security. If it not acceptable, the CPUC shall identify within six months from the date of the submittal, the areas in the report requiring correction. If SDTI does not agree with the rejection, the CPUC shall either conduct its own investigation, or communicate its disagreement with the findings of the Safety Event investigation to SDTI. The CPUC will then meet with SDTI in an effort to reach a mutually agreed upon solution. If a mutually agreed upon solution is not reached, SDTI's report and the CPUC's statement of disagreement shall be filed with the CPUC.

No investigation report or recommendation of the CPUC or other investigation report of SDTI's that is filed with the CPUC shall be admissible as evidence in any action for damages based on or arising out of matters covered therein pursuant to Public Utilities Code Section 315.

Federal Railroad Administration Reporting

The Statement of Agency Policy, 49 CFR 42526 and 42529, dated July 10, 2000, requires that rail transit agencies report Safety Events that meet reporting thresholds that occur on shared- or joint-use heavy-rail segments be reported. These reports are submitted by the System Safety Manager.

Table 6: FRA Reporting Thresholds

Form 6180.56	Annual Report of Employee Hours Worked and Casualties By State • Submitted every year with the December submission
Form 6180.55	Railroad Injury and Illness Summary • Submitted each month even if there were no reportable Safety Events/incidents during the month
Form 6180.57	Highway-Rail Grade Crossing /Incident/ Safety Event Report • Train Safety Events on crossings and corridors shared with heavy rail operations under the jurisdiction of the Federal Railroad Administration
Form 6180.55a	Railroad Injury and Illness Summary (continuation sheet) • Completed for each injury reported on Form 6180.57
Form 6180.54	Rail Equipment Safety Event/Incident Report • Should damage to MTS equipment, track, or other property exceed the FRA damage threshold, Form 6180.54 must also be submitted. The calculation of damage includes labor costs and all other costs to repair or replace in-kind, damaged on-track equipment, signals, track, track structures, or roadbed. Reportable damage does not include the cost of clearing a wreck; however, additional damage to the above-listed items caused while clearing the wreck is to be included in the damage estimate.
NOTE:	All signed forms shall be emailed to RSISAIREPORTS@dot.gov

National Transit Database Reporting

The National Transit Database (NTD) records transit-related Safety and Security data and incidents that meet certain thresholds. These reports are submitted within 30 days by the System Safety Manager through the NTD reporting website based on the following criteria:

1. A personal injury that is not a serious injury;
2. One or more injuries requiring medical transportation away from the event; and
3. Damage to facilities, equipment, rolling stock or infrastructure that disrupts the operations of a rail transit agency.

Table 7: NTD Quick Reporting Reference Guide (CY 2024)

2025 NTD Safety & Security Quick Reference Guide – Rail Mode Reporting

Reportable Event: A safety or security event occurring on transit right-of-way or infrastructure, at a transit revenue facility, at a maintenance facility or rail yard, during a transit related maintenance activity, or involving a transit revenue vehicle. *Excluded from this event reporting requirement are events that occur off transit property where affected persons, vehicles, or objects come to rest on transit property after the event; OSHA events in administrative buildings; deaths that are a result of illness or other natural causes; other events, including collisions that occur while traveling to or from a transit-related maintenance activity; and collisions involving a supervisor car or other transit service vehicle operating on public roads.*

AR and CR modes report only Major Security events and Non-major assaults on transit workers.

S&S-40 Major Event Report	S&S-50 Non-Major Monthly Summary
MAJOR THRESHOLDS An event meeting the reportable event definition AND meeting *one or more* of the following reporting thresholds: • A fatality confirmed within 30 days (including suicide) • An injury requiring transport away from the scene for medical attention for one or more persons (partial exception in the case of Other Safety Events) • Serious injury (may not involve transport from the scene) • Substantial property damage (including towing any vehicle for disabling damage) • An evacuation for life safety or to the rail right-of-way • Runaway train • Rail transit vehicle collision occurring at a grade crossing or intersection • Rail transit vehicle collision with an individual • Collision with another rail vehicle (revenue or non-revenue) • A mainline or yard derailment of revenue or non-revenue vehicle *Reports are due within 30 days of the date of the event.*	**NON-MAJOR THRESHOLDS** Assault on a transit worker with no injury. Other Safety single-injury incidents meeting the reportable event definition that **ARE NOT** a result of a collision, derailment, evacuation, major security event, hazmat spill, Act of God; and non-major fire. **Non-Major Assaults on Transit Workers:** • Non-injury (no transport) • Intent to endanger the safety of any individual • With reckless disregard for the safety of human life **Other Safety Incident** (CR mode excluded) • **Single injury** event requiring transport away from the scene for medical attention. **Fire** (CR mode excluded) • Required suppression but **does not** meet a major incident reporting threshold. *Reports due by the end of the following month*
Event Types	**Event Types/Examples**
Safety Events • **Collision** (incl. suicide/attempted suicide/assault involving transit vehicle contact) • **Derailment** (mainline or yard) • **Fire** • Hazardous material spill (requires *specialized* clean-up) • **Acts of God** (nature) • **Other Safety Events** (two injuries and/or another threshold) **System Security Events** • Arson • Bomb threat/bombing • Burglary / vandalism • Chemical/biological/radiological/nuclear release • Cyber security event • Hijacking • Sabotage • Suspicious package • Other security event (shots fired, projectiles, etc.) **Personal Security Events** • Assault (no transit vehicle contact) • Homicide (no transit vehicle contact) • Suicide or attempted suicide (no transit vehicle contact) • Robbery • Larceny/theft • Motor vehicle theft • Rape • Other personal security events (e.g., perpetrator tased)	**Non-Major Assaults on Transit Workers** ***Includes both Physical and Non-Physical Assaults*** • Threat of violence • Verbal assault/harassment • Spitting or striking • Interference with transit worker's duties **Other Safety Incidents** (CR & AR modes excluded) Single Injury due to: • Slip/trip • Fall o Including people making contact with a non-moving transit vehicle • Injury to maintenance worker • Boarding/alighting a vehicle • Abrupt or evasive transit vehicle maneuvers • Mobility device (e.g., wheelchair) securement issues • Stairs/elevator/escalator injury Excludes individuals transported for mental health evaluation unrelated to a reportable event due to declarations of self-harm, solely for intoxication, drug overdose or exposure to the elements.. **Fire** (CR & AR modes excluded) • Requires suppression but no major threshold is met o Small fire on right-of-way o Small fire in a transit station

Reportable incidents include events that occur in transit centers or parking lots of transit centers. Incidents occurring in the maintenance department of a transit agency or related to maintenance activities are excluded from the reportable incident category, as are incidents involving an on-duty transit vehicle operator not engaged in directly performing his/her operator duties.

3.1.4 Infrastructure Maintenance and Inspection

3.1.4.1 Facilities and Equipment Inspections

The Facilities Department is responsible for the maintenance and cleaning of fixed facilities, including stations, parking areas, irrigation, weed control, and exterior cleaning of non-revenue vehicles. Scheduled weekly maintenance includes maintenance of stations, facilities/buildings, and grounds, as well as vehicle inspections. Bimonthly maintenance is performed on the LRV car wash and sludge/drain system, and stations and facilities maintenance are conducted annually and as needed. A Supervisor ensures that corrective actions are implemented and closed out in a timely manner and reviews inspection and trouble reports. On-site facilities are inspected monthly for unsafe and unhealthy conditions and are documented utilizing building inspection checklists. The results of these inspections are reported to the appropriate department so that the condition can be corrected and/or operational changes can be made.

3.1.4.2 Maintenance Inspection Program

Wayside Maintenance Department

Preventive maintenance is performed for both track and signals in accordance with FRA Regulations, Part 213 for Track, FRA Part 234 for Grade Crossing, and FRA Part 236 for Signals. SDTI internal Standard Operating Procedures schedule maintenance for other equipment not covered by FRA rules, such as traction power substations, OCS, overpasses, bridges, and tunnels.

The inspection interval is time-based, and nonrevenue vehicles are scheduled by mileage. A list of Wayside scheduled maintenance programs designed to examine both the safety and efficiency of the operating equipment follows:

DAILY	WEEKLY
• Station lighting • Rights-of-way • Maintenance facilities • Non-revenue vehicles	• Track (twice weekly) • Track bonds • Street switches • SDSU emergency lighting/walkway for tunnel • SDSU tunnel structure integrity (completed during track inspections)

MONTHLY

- Switch inspections per FRA rules
- Gates and crossing protection equipment
- FRA inspections: 103, 104, 107

QUARTERLY

- SDSU wet standpipes (under maintenance contract with Simplex/Grinnell)

ANNUALLY

- OCS, trees and shrubs for interference with overhead wires and pedestrian walkways, FRA inspections: 106, 108, 109
- Preventive maintenance for portable equipment and rail-bound maintenance equipment, with recertification provided bi-annually by a designated contractor.
- Emergency vent fans
- Sump pumps
- SDSU underground phones
- Annual bridge inspections by a designated contractor
- Bi-Annual Substations Maintenance

2-YEAR

- Tunnels

3.1.5 Vehicle Maintenance, Inspection, and Repair

3.1.5.1 LRV Scheduled Maintenance

Scheduled maintenance is performed periodically on the basis of time intervals, mileage intervals, and manufacturer's specifications. Each inspection targets a specific area along with a visual check of all subsystems to ensure nothing is overlooked. A list of LRV scheduled maintenance programs that are designed to examine both the safety and efficiency of the operating equipment follows:

U2

- Daily Inspection
- Daily Cleaning Procedures for LRVs
- 6 Month Inspection
- Annual Inspection
- 6 Month Oil Change

SD-7/SD-8/SD-9/SD-10

- Daily Inspection
- 7.5K Inspection
- 15K Inspection
- 30K Inspection
- 60K Inspection
- Annual Inspection
- 6 Month Oil Change

PCC

- Bi-Annual Inspection

3.2 MANAGEMENT OF CHANGE

3.2.1 Configuration Management

System modifications are carefully evaluated and considered from concept to design and implementation to determine how the change might affect the safety of the system. MTS, SDTI, and SANDAG staffs, as applicable, working under the direction of SDTI, evaluate the proposed modification for its potential to create additional hazards or to reduce the effectiveness of existing hazard controls. MTS, SDTI, and SANDAG staffs, as applicable, coordinate the integration of new equipment, system expansion, modification, and system rehabilitation from the design and procurement effort through construction, inspection, testing, and start-up. GO-164-F requires a Safety Certification Plan be developed and submitted to the CPUC for review and approval during the project preliminary design phase. The Safety Certification Plan purpose is to ensure extensions, and the new capital and new capital projects are reviewed for compliance with safety requirements and to ensure the system satisfies operational readiness to enter revenue service.

3.2.1.1 Regional Project Implementation

Regional Projects are administered by SANDAG project implementation staff under the direction of SDTI, MTS, and SANDAG management. The SANDAG project implementation team develops contract documents (plans and specifications) and organizes review meetings with SDTI, SANDAG, consultants, and other agency staff, as needed. The project is constructed in accordance with the contract documents and contract change orders, and contract work built by the contractors is tested and inspected.

3.2.1.2 Change Control

The purpose of configuration management is to establish standard procedures and policy for the control of changes to transit systems and facilities. The configuration management process is applied to any changes or modifications to the system that may affect operational safety. The process is followed for creation of construction plans and specifications, specification and procurement of vehicles and components, and contract change orders. The SANDAG project engineer shall solicit input from SDTI staff during the scoping, design, and construction phases of a project. The SANDAG project engineer is responsible for carefully reviewing and coordinating SDTI input and shall evaluate all possible impacts to the system before recommending a project scope and design to the COO-Rail for approval.

Modifications to safety critical subsystems like tracks, structures, grade crossings, or vehicles must be designed by professional engineers and then managed by professional construction managers. Once construction is complete and safety certification is verified, revenue operation may start. Any changed conditions are recorded on as-built documents then addressed in operations and maintenance manuals, procedures, and by training.

The process establishes and documents the authority needed to make configuration changes, the process for incorporating these changes in all appropriate documentation, and the process for ensuring that all necessary business units are aware of such changes. A systematic and comprehensive review and approval process will occur before changes are made.

Configuration Management ensures that:

- The primary and secondary impacts of all system changes are adequately addressed during the scoping phase of a project or procurement
- A careful, systematic, and comprehensive review and approval occur during the design and construction phase of a project or procurement
- Revision records are maintained with the document
- Only the latest approved document is distributed
- The completed modifications are properly incorporated into the existing system

Thorough configuration records and controls are in effect to ensure that an audit trail exists, tracking the current facility or equipment configuration back to its inception, and that only the current approved set of documents is released for construction and operations. All completed documentation concerning changes or updates of as-built documents are maintained and/or filed at the SANDAG engineering offices, as applicable.

3.2.1.3 New Systems

SDTI staff will review project design documents (plans and specifications, failure and critical analysis reports), equipment submittals, test procedures and reports, operations and maintenance manuals, and other related documents as needed. An inspection of the finished system ensures compliance with all SDTI, manufacturer, federal, state, and local requirements.

3.2.2 Safety and Security Certification Process

The Safety Certification Program verifies that safety-related requirements are incorporated into rail transit projects. The goal is to verify that safety standards are met or exceeded in the design, construction, and start-up of these projects. SANDAG self-certifies regional SDTI rail transit projects, subject to the safety oversight of the CPUC. The CPUC requirements for safety certification are identified in General Order 164-F, which SDTI adheres to. The SANDAG Director of Engineering and Construction is responsible for overseeing the activities of the safety certification plan as applied to regional SDTI rail transit projects. A safety certification plan identifies all project elements considered safety-critical that must be verified prior to incorporation into the system.

3.2.2.1 Purpose of Safety and Security Certification

The purpose of the safety certification process is to:

- Identify the processes to verify and document that the design, construction, and installation of facilities, systems, and equipment are in compliance with design criteria, conformed contract specifications, and applicable safety and security requirements
- Hazards are identified, analyzed, and resolved
- Contractor training and operations and maintenance manuals are provided to SDTI staff
- Rules and procedures are written
- Operations personnel are trained in rules and procedures
- Emergency services personnel are trained on rail systems and facilities
- Emergency drills are conducted
- Safety and security documentation is properly maintained

3.2.2.2 Goals of Safety and Security Certification

The goals of the safety certification process are that:

- All SANDAG rail transit projects meet or exceed acceptable safety levels
- Verification of safety standards are documented
- A consistent manner to certify projects is established and followed

3.2.2.3 Objectives of Safety and Security Certification

Safety certification covers the design, construction, testing, training, and operational safety and security of the following:

- System Safety: Elimination, minimization, or control of potential hazards to patrons, the general public, employees, contractors, and property to the most practical level through effective use of available design, engineering, and/or procedural measures
- Fire/Life Safety: Elimination, minimization, or control of potential hazards to patrons, employees, emergency response personnel, property, and the general public caused by fire, smoke, explosion, or resulting panic to the most practical level through effective use of available design, engineering, and/or procedural measures
- Occupational Safety: Elimination, minimization, or control of potential hazards to employees, contractors, and emergency response personnel to the most practical level through effective use of available design, engineering, and/or procedural measures during revenue service
- System Security: Elimination, minimization, or control of potential security threats and vulnerabilities to patrons, the general public, contractors, and property to the most practical level through the effective use of available design, engineering, and/or procedural measures

3.2.2.4 Elements of Safety and Security Certification

Safety certification verifies that safety-critical subsystems, plans, procedures, and training programs are reviewed for compliance with safety requirements prior to the start of revenue service.

- The safety features required by the technical specifications are properly included in the finished product(s)
- Subsystems are tested and inspected to verify that the safety features perform as the design intended
- The hazard identification analysis and resolution process is performed
- Plans, procedures, and training programs are developed, reviewed, and implemented prior to the start of revenue service
- Responsible program participants verify that the above are completed to document a traceable history of the safety certification process
- Security certification coordination for maintenance elements and major capital projects is included in the safety certification process as it pertains to those facilities

3.2.2.5 Safety and Security Certification Process

As applicable, SANDAG is responsible for self-certifying and has overall responsibility for the safe and dependable design, construction, and pre-revenue operation of safety-critical projects. The following steps typically comprise the safety certification process:

Step 1: Identify certifiable elements
Step 2: Develop safety and security design criteria
Step 3: Develop and complete design criteria conformance checklist
Step 4: Perform construction specification conformance
Step 5: Identify additional safety and security test requirements
Step 6: Perform testing and validation in support of safety certification
Step 7: Manage integrated tests for safety certification
Step 8: Manage open items in the safety certification program
Step 9: Verify operational readiness
Step 10: Conduct final determination of project readiness and issue a Safety Certification Verification Report

If complications arise that render a safety-critical system element incomplete or temporarily unavailable, the deficiency can be mitigated by establishing operating restrictions, general notices or bulletins are issued to all affected departments. Compliance with the general notice or bulletin dealing with an exception is monitored constantly to ensure compliance.

3.2.2.6 Safety and Security Certification Verification Report

The final step of safety certification before a new project, modified system, equipment, or facility may enter revenue service is the preparation of the Safety Certification Verification Report (SCVR). The SCVR provides an executive summary of certifiable elements prior to revenue service. The SCVR includes safety certification letters documenting signature sign-off by department heads and the COO-Rail. The SCVR provides documentation as follows:

- Design and construction reviews
- Certificates of safety compliance
- Testing
- Plans, rules, and procedures
- Emergency drills (if necessary)
- Maintenance training
- Operations training
- Operations and maintenance manuals
- Hazard identification and resolution
- Audits
- Security certification
- Exceptions list

The SCVR is transmitted by the CEO to the CPUC Rail Safety Division Director at least 21 days prior to revenue service requesting final authority to approve the project for revenue service. An approval letter from the CPUC is required prior to commencement of revenue service.

3.2.2.7 Roles and Responsibilities

SDTI Participation

SDTI and SANDAG, as applicable, are responsible for ensuring the design review process for new equipment, system expansion, and system modifications comply with the requirements specified under the Configuration Management Plan, and any hazards associated with system expansions or modifications are included in the hazard identification analysis and resolution process.

SDTI staff's participation in the project implementation phases of planning, design, construction, and start-up and testing is required to ensure the system is designed and constructed in compliance with the operational and maintenance needs.

Chief Executive Officer

The MTS CEO will provide input and direction during project implementation.

Chief Operating Officer-Rail

The SDTI COO-Rail will be a member of the Rail Activation Committee and may chair a pre-revenue operations subcommittee.

Director of Rail Transportation

The SDTI Director of Rail Transportation, under direction of the COO-Rail, will provide input on operating plans, train timetables, train-consist configurations, fleet and equipment need, operational characteristics, and other operational requirements.

Director of Rail Wayside Maintenance

The SDTI Director of Rail Wayside Maintenance, under direction of the COO-Rail, will provide input to the project team on wayside and system maintenance issues.

Director of Rail LRV Maintenance

The SDTI Director of Rail LRV Maintenance, under direction of the COO-Rail, will provide input to the project team on vehicle issues.

MTS Chief of Police

The MTS Chief of Police manages the MTS Transit Enforcement Department. The Chief of Police, with Transit Enforcement Department staff as needed, will coordinate closely and participate in the Safety and Security Review and Fire Life Safety and Security Committees with emphasis on operational and construction security issues.

System Safety Manager

The SDTI System Safety Manager coordinates closely with the COO-Rail and may chair the Safety and Security Review and Fire Life Safety and Security Committees, as appropriate.

Safety and Security Certification Committees

Multiple committees may be established in support of project certification programs, including the Safety & Security Review and the Fire Life Safety & Security Committees. Membership on these committees may change as the projects enter different phases.

Safety and Security Review Committee

The Safety and Security Review Committee (SSRC) is a multidisciplinary working group that serves as a high-level committee to address all safety and security issues for projects. This committee oversees the implementation of each project’s Safety and Security Certification Plan.

Fire/Life Safety and Security Committee

The Fire/Life Safety and Security Committee (FLSSC) membership consists of SANDAG and MTS staff, along with representatives from fire, police, emergency services, and local building code agencies. The FLSCC is to review requirements that relate to fire life safety and obtain concurrence from local authorities having jurisdiction that the proposed designs meet code requirements. The FLSSC also reviews security requirements.

CPUC Participation

CPUC GO 164-F requires that the Safety Certification Plan be developed and submitted to the CPUC for review and approval during the preliminary design phase of major projects. The CPUC formally approves the Safety Certification Plan prior to the project final engineering phase.

3.3 CONTINUOUS IMPROVEMENT

MTS is committed to evaluating the effectiveness of its procedures for operations and maintenance. Various methods are routinely used to perform this assessment including, but not limited to the following: internal safety reviews, employee performance observation reports, efficiency testing. Additionally, external safety reviews are periodically conducted by established federal, state and local oversight agencies.

3.3.1 Safety Assessment

3.3.1.1 Internal Safety Management Reviews

Annual internal safety audits are conducted by the System Safety Manager and agency staff (reviewers) to ensure that compliance is maintained, and objectives are met. If the System Safety Manager is responsible for the audit checklist under review, agency staff independent of the safety function will complete the checklist. Additionally, reviewers must be independent from the first line of supervision responsible for the checklist under review. Internal safety audits required by the FTA Oversight Rule 49 CFR Part 674 for Fixed Guideway Systems are witnessed by a CPUC-designated representative. Should there be a disagreement on findings, the responsible party and reviewers will meet with the COO-Rail. If no resolution can be reached by the COO-Rail, then the internal auditor and CEO will review and issue a final determination. The System Safety Manager provides monthly progress reports to the CPUC-designated representative on the status of the open items/recommendations, as well as to the COO-Rail for review and comment on the status of recommendations and corrective actions.

Table 8: Process for Conducting Reviews

	Task	Deadlines (no later than)
1	Ensure checklist reference sheets are up to date	Prior to next step
2	Notify reviewers and CPUC of audit checklists and audit dates via memo and meeting invitation	30 days prior to beginning of audit
3	Complete audit of checklists	December 31 of audit year
4	Review findings of each checklist reviewed with COO-Rail and responsible departments. Draft corrective action plan, if necessary.	January 31 of following year
5	Submit final internal safety audit including findings and corrective action plan, to CPUC	February 15 of following year

The CPUC also conducts periodic safety audits. Audits may include review of equipment, procedures and programs, inspection of documents and records relative to operations and maintenance and tracking and resolving open defects during inspections.

Results from the annual internal safety audit are documented in a report submitted to the CPUC annually by February 15 as required by 49 CFR Part 674 and GO 164-F. This annual audit includes elements scheduled on a rotation to ensure that all twenty-one elements are completed during the three-year cycle. This schedule is included with the Internal Safety Audit Report.
The report summarizes the results of the internal safety audit. Any deficiencies or instances of noncompliance are brought to the attention of the responsible department by the System Safety Manager. During this discussion, a corrective action plan (CAP) is created, and it is determined that any disagreement or discrepancy found is resolved. The correction action plan contains the identification of the required action needed to minimize, control, correct or eliminate the identified risk and hazard; the schedule for taking these actions and identifies responsible party. Documentation of corrective action progress and resolution is given to the System Safety Manager by each department for review and final closure. The System Safety Manager is responsible for tracking all corrective actions to completion and submits progress reports monthly to the CPUC.

3.3.1.2 External Safety Management Resources

A compliance safety management review is available when it is determined that verification of compliance to policies, plans, procedures, milestones, or other predetermined requirements need to be made. These compliance safety management reviews indicate whether requirements are met (yes or no) or partial compliance.

Peer reviews are a valuable resource to SDTI for assessing all aspects of transit operations and functions. Highly experienced rail transit personnel who are selected on the basis of their subject matter expertise conduct the peer reviews on-site. Through the benefits of on-site interviews of SDTI staff and review of relevant documents, the peer review panel concludes its review with a summary of observations and recommendations as needed.

DEPARTMENTS SUBJECT TO REVIEW

	Task	2022	2023	2024	2025	2026
1	Policy Statement			2024		
2	Purpose, Goals, and Objectives			2024		
3	RTA Management Structure			2024		
4	Interdepartmental/Interagency Coordination		2023			2026
5	Plan Implementation, Plan Review, and Modification		2023			2026
6	Hazard Management Program		2023			2026
7	Safety Certification Process (SANDAG)	2022			2025	
8	Safety Data Acquisition	2022			2025	
9	Incident Notification, Investigation, and Reporting		2023			2026
10	Emergency Management Program		2023			2026
11	Internal Safety and Security Audit Program			2024		
12	Rules Compliance	2022			2025	
13	Facilities and Maintenance Inspections			2024		
14	Maintenance Audit and Inspection Program			2024		
15	Training and Certification Program	2022			2025	
16	Configuration Management Process (SANDAG)		2023			2026
17	Compliance with Local, State and Federal Safety Requirements			2024		
18	Hazardous Materials Program		2023			2026
19	Drug and Alcohol Program			2024		
20	Procurement (SANDAG)	2022			2025	
21	PED Random Monitoring Program		2023			2026
22	Roadway Worker Protection Program		2023			2026
23	Security (five elements over three years)					
	S-1: Identify Policies, Goals and Objectives		2023			2026
	S-2: Process for Management of Threat Vulnerabilities		2023			2026
	S-3: Identification Concepts for Passenger and Employee Security			2024		
	S-4: Process for Internal Security Audits	2022			2025	
	S-5: Process for Generating Security Plans	2022			2025	
	S-6 Process for notifying, investigating and reporting security breaches			2024		

1	Policy Statement	Safety
2	Purpose, Goals, and Objectives	Safety
3	RTA Management Structure	Safety
4	Interdepartmental/Interagency Coordination	Safety
5	Plan Implementation, Plan Review, and Modification	Safety
6	Hazard Management Program	Safety
7	Safety Certification Process	SANDAG Project Management
8	Safety Data Acquisition	Safety
9	Incident Notification, Investigation, and Reporting	Safety
10	Emergency Management Program	Safety
11	Internal Safety and Security Audit Program	Safety
12	Rules Compliance	Transportation LRV Maintenance Wayside Maintenance Facilities
13	Facilities and Maintenance Inspections	Facilities LRV Maintenance Wayside Maintenance
14	Maintenance Audit and Inspection Program	Wayside Maintenance
15	Training and Certification Program	Transportation LRV Maintenance Wayside Maintenance Facilities
16	Configuration Management Process	SANDAG Project Management
17	Compliance with Local, State, and Federal Safety Requirements	Safety
18	Hazardous Materials Program	Safety
19	Drug and Alcohol Program	Human Resources
20	Procurement	SANDAG/MTS Procurement
21	CPUC G.O. 172: Personal Electronic Device Prohibitions/In Cab Cameras	Transportation LRV Maintenance Wayside Maintenance Facilities
22	CPUC G.O. 175-A: Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems	Transportation LRV Maintenance Wayside Maintenance Facilities
23	Security (six elements over three years)	Security
	S-1: Identify Policies, Goals and Objectives	
	S-2: Process for Management of Threat Vulnerabilities	
	S-3: Identification Concepts for Passenger and Employee Security	
	S-4: Process for Internal Security Audits	
	S-5: Process for Generating Security Plans	
	S-6: Process for notifying, investigating, and reporting security breaches	

ISSA Master Schedule based on GO 164-F requirements effective January 16, 2025

3.3.1.3 External Safety Management

Compliance safety management review focuses on verification of compliance to policies, plans, procedures, milestones, or other predetermined requirements. These compliance safety management reviews indicate whether requirements are met (yes or no) or partial compliance.

Peer reviews are a valuable resource to SDTI for assessing all aspects of transit operations and functions. Highly experienced rail transit personnel who are selected on the basis of their subject matter expertise conduct the peer reviews on-site. Through the benefits of on-site interviews of SDTI staff and review of relevant documents, the peer review panel concludes its review with a summary of observations and recommendations.

3.3.1.4 Safety Culture Assessment

It is important for SDTI to continually assess its effectiveness on overall safety. Since safety culture is not “visible,” assessment is not simple. Types of assessment instruments may include the following:

- Surveys of employee attitudes, opinions, and perceptions
- Written questionnaires
- Face-to-face interviews
- Focus group interviews
- Ability of the organization to focus on long term performance
- How SDTI handles conflicts
- How SDTI views errors and mistakes
- Ability of the organization to focus on improving safety defenses instead of assigning blame
- SDTI’s proactive stance toward safety

4.0 SAFETY PROMOTION

Safety promotion has two subcomponents:

1. Safety Communication
2. Competencies and Training

Safety promotion provides increased safety awareness through safety training and communications. This process helps employees have the skills needed to perform their job safely and to have shared ownership of MTS's safety program. Management commitment is demonstrated through visibility of safety throughout MTS.

4.1 SAFETY COMMUNICATION

An effective SMS includes a positive safety culture where there is a two-way feedback loop between frontline employees and management about safety information. This communication fosters an environment where hazards and safety risks are routinely discussed, and employees feel encouraged to report safety concerns. Management commitment is essential to ensure an effective SMS.

SDTI uses the intranet to communicate safety activities and events throughout the agency including updates to critical documents, such as the Public Transportation Agency Safety Plan. SDTI also uses bulletins communicating safety activities and events. These bulletins are placed on display boards throughout the SDTI workplace.

4.1.1 Workplace Safety Programs

4.1.1.1 Industrial /Occupational Safety Program

SDTI has developed and implemented an Injury and Illness Prevention Program (IIPP) to maintain a self and healthful workplace for employees. The IIPP Manual includes the following:

- Management Commitment/Assignment of Responsibilities
- Safety Communications
- Hazard Assessment and Control
- Safety Event Investigation
- Safety Planning, Rules, and Work Procedures
- Safety and Health Training

SDTI's IIP is designed to have input from employees and coordination with labor unions and their local representatives. Contractors are also required to conform to industrial and occupational safety program requirements.

4.1.1.2 Exposure Control Plan for Bloodborne Pathogens and Infectious Materials

MTS's policy is to provide safe working conditions and a safe work environment for all of its employees. The written Exposure Control Plan (Plan) is designed to minimize occupational exposure to blood and other potentially infectious materials. The Plan is located for employees to review on the MTS Intranet.

The written Plan was prepared to meet 8 CCR Section 5193 and 29 CFR 1910.1030.

4.1.1.3 Fitness for Duty Program

SDTI is committed to ensuring that employees and contractor personnel are fit for duty. Many factors can affect their overall fitness, including drugs and alcohol, fatigue, prescription drugs, and cognitive distractions.

4.1.1.4 Drug and Alcohol Program

MTS is committed to a drug- and alcohol-free workplace. All MTS employees are issued and acknowledge receipt (signature to employee file in the Human Resources Department) of the MTS Drug and Alcohol Policy. All guidelines of this policy are prepared according to 49 CFR Parts 653, 654, and 655; Drug-Free Workplace Act, effective August 1, 2001. Policy application is monitored and recorded by the Human Resources Manager, including physical examinations and post-Safety Event test results. Violation of the policy subjects the employee to immediate termination from SDTI.

4.1.1.5 Fatigue Program

Fatigue can contribute to hazardous operations. SDTI has implemented countermeasures to manage this risk potential. These measures include the following:

- Hours of service rules
- Medical evaluations for sleeping disorders
- Awareness training for employees and contractors

4.1.1.6 Medical Monitoring Program

MTS has medical standards that apply to safety sensitive positions which include pre-employment medical examinations and periodic examinations to identify any physical or mental deterioration of employees below thresholds established for safe performance of their duties.

4.1.1.7 Critical Incident Follow-up- Post Traumatic Stress

After significant incidents, such as major Safety Events, SDTI offers involves employee's referral to the Employee Assistance Program (EAP).

After-action reports are prepared that include the following elements:

- Review interagency relationships to minimize interagency misunderstandings
- Ensure that a formal review of problems encountered is performed
- Learn from innovations developed during incidents
- Aid personnel in coping with the stresses of complex traumatic events

Transit personnel and emergency responders often face emotional trauma from serious incidents (post-traumatic stress disorder [PTSD]). SDTI provides access to health professionals to help counteract PTSD.

4.1.1.8 Cognitive Distraction and Attentional Error

Cognitive distraction refers to an employee or contractor taking his or her mind off the job. One major cause of cognitive distraction is the increased use of personal electronic devices, such as cell phones. SDTI has implemented a zero tolerance for cell phone use while on the job except in designated areas on SDTI property (see section 4.2.5).

4.1.2 Procurement

SANDAG/MTS procurement staff is responsible for planning, solicitation, award, administration, and documentation of contracts. SANDAG/MTS uses procurement procedures that reflect applicable state and local laws and regulations and, when applicable, federal law. All procurements and contracts must be approved in accordance with SANDAG/MTS Board Policies and delegation of authority. All completed documentation is kept on-file at SANDAG/MTS offices concerning procurements and policies.

SANDAG/MTS engineering staff is responsible for ensuring the material supplied conforms to procurement specifications. Per policy and procedures set forth in the Configuration Management Plan product submittals, design drawings, and change orders must be reviewed and approved. Through the efforts of SANDAG/MTS construction management contractors, inspection and quality-assurance measures are implemented to ensure unacceptable material is rejected and discarded.

All employees, agents, and contractors who are permitted to work on SDTI property must adhere to the provisions required by the MTS Agency Safety Plan.

The Safety Data Sheet (SDS) Program has established specific procedures for the acquisition and dissemination of information regarding hazardous materials. All operations and maintenance departments must meet applicable state, federal, and local regulations for the proper labeling, storage, handling, and disposal of hazardous materials, including documentation and recordkeeping requirements.

SDTI Stores Department procedures regarding procurement include:

- Procurement process complies with established procedures for evaluating materials and products for use by SDTI
- Safety Data Sheet requirements are met and copies maintained for all materials and that the materials undergo an evaluation by the Industrial Hygiene and Environmental Safety Section prior to use
- Develop, maintain, and utilize a list of hazardous materials and equipment; enforce procurement restrictions and other procurement procedures
- Follow safety procedures related to hazardous substance acquisition, handling, labeling, storage, disposal, and recordkeeping

4.1.3 Hazardous Materials Program

Procedures are in place to control hazards associated with procurement, storage, transfer, use, and disposal of hazardous substances. These procedures also address recordkeeping and reporting requirements. Hazardous Material Plans are developed for each facility and comply with 40 CFR 372 and SARA Title III Section 313.

The Hazard Communication standards orientation includes training and/or information on:

- OSHA Hazard Communication Standards
- Material Safety Data Sheets (MSDS)
- Physical health effects of hazardous materials used at SDTI
- Steps that SDTI has applied to minimize exposure to these materials
- Methods to determine presence or release of hazardous chemicals
- Emergency procedures for exposure to hazardous chemicals

4.1.4 Public Safety Programs

SDTI provides ongoing passenger and public safety programs to rail transit patrons and the general public. This outreach affects all aspects of the agency. During rail extensions, SANDAG provides outreach during all phases of the project starting with design and culminating in revenue service operations. MTS outreach programs include rail operations and major rail rehabilitation projects.

4.2 COMPETENCIES AND TRAINING

There are many different kinds of training involved in safety promotion. They include the following:

- Training of the Board of Directors on its role in transit safety during regular scheduled Board of Directors meeting
- Training of all employees on their role and responsibilities as they relate to safety performance

- Development of safety competencies at the frontline employee level: formal training on the contents of an effective employee safety reporting system
- At safety management level, training should develop safety data management competencies, how to analyze safety data, extract information from safety data, and turn safety information into safety intelligence

MTS has a very progressive agency-wide training program. All new employees are given safety training, which includes an overview of SMS. Many of the MTS employees have taken safety courses (including SMS) from the FTA's Transportation Safety Institute (TSI). MTS has hosted many TSI classes to enable more MTS employees to attend. Several MTS employees are also TSI instructors.

Safety Events, incidents, and near misses are used in training to educate personnel on how to prevent future occurrences.

4.2.1 Rules and Procedures Review

MTS identifies operating and maintenance procedures that affect safety. These operating and maintenance rules and procedures that affect safety are reviewed for their effectiveness, and MTS determines when they would require updates or revisions.

4.2.1.1 Rules and Instructions for Employees

Rules and Instructions for Employees establishes the rules of personal conduct, instructions in the safe operation of trains, signals and interlocking, special operations, electric power systems, and general communications. The Human Resources Manager issues the rulebook to all employees who certify by signed receipt that they have received a copy that they agree to comply with the provisions therein and understand that their failure to comply with such provisions may subject the employee to disciplinary action, up to and including discharge.

4.2.1.2 Standard Operating Procedures

Standard Operating Procedures (SOPs) are issued to employees in each department on an as-needed basis. SOPs cover specific guidelines and instructions on how to perform related duties with the intent to ensure operational and maintenance safety. Departments that are affected by the same procedures are identified on the SOP distribution list. The department heads are responsible for issuing and updating their department's SOPs and distributing to employees within their department.

4.2.1.3 Compliance with Operating and Maintenance Rules and Procedures

The System Safety Manager has the functional authority, under direction of the COO-Rail, to ensure that all employees comply with the ASP and that all operations and maintenance-related functions are performed with the intent to provide safety duties.

Line Supervisors conduct efficiency testing to document inspections of train operator performance. An efficiency test is an inspection of employee performance that is unobserved, unannounced, and unexpected by the train operator. An efficiency test is completed on each train operator every quarter. The efficiency testing program is administered by the System Safety Manager. The supervision and tracking of the efficiency testing program is carried out by Transportation Department training staff.

Line and Construction Safety Supervisors also conduct work-site inspections to verify that the work sites and employees are in compliance with the Roadway Worker Protection Program. A representative sample is monitored and logged by the Central Control Supervisor or designee as well as reviewed when there is a derailment, collision, complaint against an operator, report of noncompliance with personal electronic device policy, security events, or to augment efficiency testing or any other event deemed necessary.

4.2.2 Training and Certification Programs

MTS provides agency-wide safety training programs to all employees. All new employees are given safety training, which includes an overview of Safety Management Systems. In addition, MTS sponsors ongoing Transportation Safety Institute (TSI) safety and security training courses to be held either on site in San Diego or, alternatively, sponsors employees to take TSI training at other locations.

4.2.2.1 Transportation Department Training

The Training Supervisor is responsible for all aspects of training within the department and interdepartmental training for on-track and roadway worker operating qualifications. The Training Supervisor develops programs, conducts classroom/field training for many job classifications, and is responsible for instructional activities for Supervisors, Train Operators, Flagpersons, and LRV Maintenance and Maintenance-of-Way personnel.

The Training Supervisor is responsible for the development of training requirements, initial instruction of new employees, and follow-up training and recertification. The Training Supervisor maintains employee records relative to training sessions, safety-related and defensive operating programs, Safety Event investigation, field exercises and public/customer relations as well as emergency procedures pertaining to a variety of scenarios.
The Transportation Standard Operating Procedures issued to employees include all departmental operating procedures (including safety and emergency procedures) as well as the Rules and Instructions for Employees Handbook. Train Operators and Supervisors (control, yard, and line) are required to demonstrate qualifications on these procedures during initial training. Additionally, training and recertification is required for each Train Operator and Supervisor biennially (after initial qualification) to ensure their current understanding of all safety-related matters and procedures. The System Safety Manager reviews the recertification programs to verify compliance with regulatory requirements.

Train Operators

The 440-hour initial training and biennial 24-hour recertification programs include classroom training, field exercises, and written and practical examinations pertaining to:

- Defensive driving/accident prevention
- Passenger sensitivity
- De-escalation
- LRV troubleshooting technique
- Emergency situation instruction
- Roadway worker safety

Supervisors

The 120-hour initial training and biennial 16-hour recertification programs include:

- Safety Event investigation
- De-escalation
- Equipment operation and troubleshooting
- Emergency situations instruction
- Administrative policy
- Roadway worker safety

Controllers

The 320-hour Controller training and recertification programs include orientation with the Wayside Maintenance, Track, and Security, as well as:

- System failure recovery techniques
- Manual block operations and instructions
- Interdepartmental and interagency communications
- Risk management
- De-escalation
- Safety Event investigation
- Equipment operation and troubleshooting
- Emergency situations instruction
- Administrative policy
- Roadway worker safety

4.2.2.2 Wayside Maintenance Department Training

New employees are instructed on company policies, safety rules, safety programs, and emergency procedures. Each maintainer is registered with the State of California to participate in a four-year Apprenticeship Program. Under this program, personnel must complete college-level training in electricity and electronics and participate in on-the-job and in-house training classes before becoming Journeyperson certified. New personnel with experience that demonstrate their knowledge of subject have the option of taking apprenticeship program (AP) examinations. If the new employee is successful in passing all required AP examinations, they qualify to be a Lineman.

Maintenance training is conducted continually. Track personnel participate in the "Track Training Program II" administered by the Railway Educational Bureau of Omaha, Nebraska and supported by SDTI. Qualification is required for main line operation of hi-rail track and rail-bound maintenance equipment. Qualification is required for main line operation of hi-rail track equipment with recertification provided biennially. Roadway Worker Protection Program qualification is required for Wayside Maintenance and Track Department employees with annual recertification.

Safety Meetings conducted by Supervisors cover a variety of subjects that relate to specific job duties such as:

- Hazardous material disposal
- State right-to-know laws
- Electrical safety
- Defensive driving
- De-escalation

As part of their daily routine, Shift Supervisors will observe workers' actions to:

- Identify potential hazards and initiate corrective action
- Look for unsafe work habits or improper use of equipment
- Ensure that safety equipment is properly and appropriately used

4.2.2.3 LRV Maintenance Training

The LRV Training Supervisors as well as the LRV Supervisors are responsible for providing employee orientation and training and verifying performance of required safety program activities during their shift. In addition, each maintainer is registered with the State of California to participate in a four-year Apprenticeship Program. Under this program, an employee must complete college-level training in electricity and electronics and go through on-the-job and in-house training classes before finally receiving certification as a Journeyperson by the State of California. All LRV Maintainers are certified on:

- Yard operation of LRVs (limited qualification)
- OSHA forklift operation
- Hazardous communication/blood-borne pathogens
- De-escalation

Biweekly and Toolbox Meeting safety meetings conducted by Shift Supervisors cover topics including:

- Hazardous materials disposal
- Electrical safety
- Shop power red tag/blue flag procedures
- Preventive maintenance for re-rail equipment
- Yard and shop safety
- Safe working habits, ergonomics, and PPE

4.2.2.4 Revenue Department Training

Safety is a vital element in the Revenue Department training program. Revenue Collector/Processors must be alert to the threat of armed robbery, and they are potentially subject to injuries from carrying and lifting heavy coin vaults. Job duties may require driving on congested highways, city streets, and pedestrian-active parking areas. Each employee is issued a company handbook that includes all safety instructions. New employees in the Revenue department are registered with the State of California to participate in a four-year Apprenticeship Program. Maintainers in the program must receive college-level training in electricity and electronics, participate in on-the-job and in-house training classes, de-escalation and pass all requirements before obtaining Journeyperson certification. Individual and group safety meetings are held on a monthly basis within the Revenue Department.

4.2.2.5 Facilities Department Training

New employees are instructed on the Rules and Instructions for Employees Handbook, company policies, safety programs, Drug and Alcohol Policy, Hazard Communication Program, and emergency procedures. Roadway Worker Protection Program qualification is required for Wayside Maintenance and Track Department employees, with annual recertification.

Toolbox meetings conducted by Shift Supervisors cover topics including:

- State right-to-know laws
- Proper use and disposal of cleaning chemicals, pesticides, and other hazardous materials
- Forklift and man-lift operating safety
- Power tool safety
- Hazard communication
- De-escalation

4.2.2.6 Board of Directors Safety Training

In accordance with FTA requirements, MTS has developed a safety presentation for the Board of Directors. This presentation explains the principles of Safety Management Systems and the role of the Board of Directors in the review and approval of the Public Transportation Agency Safety Plan.

4.2.2.7 Emergency Services Training

The purpose of this program is to familiarize San Diego-area emergency-response personnel and other organizations with the operating characteristics of the San Diego Trolley system and equipment.

Key training elements covered include but are not limited to:

- Brief Introduction to SDTI
- Roadway/Main Line and Yard Safety
- Traction Power
- Electrical Safety
- Communication with OCC or SDTI
- Railroad Response Protocol
- Cell phone usage on SDTI property
- Front Line Supervisor Identification
- Vehicle Familiarization
- Vehicle Access

The expectation of this exposure to SDTI's environment and procedures is to generate knowledge and awareness among personnel in emergency response agencies and to mitigate the risk of potential dangers to responding personnel, SDTI employees, and its patrons.

4.2.3 Roadway Worker Protection

It is SDTI's mission to provide safe, reliable, and courteous service. The Safety Department is responsible for compliance with federal, state, and local regulatory requirements.

4.2.3.1 Roadway Worker Protection Plan

A roadway worker is any person who is fouling or has the potential to foul the track, including an employee of a railroad or a contractor to a railroad whose duties include inspection, construction, maintenance, or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities, or roadway machinery on or near track or with the potential of fouling a track.

Employees, contractors and other non-railroad employees who perform work fouling any track or occupying the right-of-way must attend roadway worker safety training and maintain a copy of the Roadway Worker Protection Plan at the work site. It is the responsibility of SDTI to:

- Properly train every roadway worker.
- Guarantee each employee the right to challenge, in good faith, whether the on-track safety procedures to be applied at a work site comply with the Roadway Worker Protection Plan and SDTI Rules and Instructions for Employees.
- Follow proper procedures to resolve challenges promptly and equitably.

4.2.3.2 Roadway Worker Safety Program Management

Under the direction of the Director of Rail Transportation, the development, revision, and scheduling of initial roadway worker training and recertification will be the responsibility of the Transportation Department Training Supervisor and are conducted in compliance with Section 1.3 of the SDTI Rules and Instructions for Employees and the Roadway Worker Protection Plan. All classroom training modules will be conducted by the Transportation Department Training Supervisor or their designee. Program outline and individual modules will include the date of last revision.

4.2.3.3 Roadway Worker Safety Training

Recertification is conducted annually for all roadway workers and biennially for employees who may interface with roadway workers, including train operators, controllers, and supervisors. This training covers, but is not limited to:

- Identification of the right-of-way and the limits in which roadway worker protection (RWP) is required
- Recognition of railroad tracks and understanding of the space surrounding them
- Hazards associated with working on or near railroad tracks, including review of on-track safety rules and procedures
- Hazard/near-miss program and reporting procedures
- Understanding of hazards through a representative field setting
- The functions and responsibilities of various persons involved with on-track safety procedures
- Proper compliance with on-track safety instructions given by person responsible for on-track safety
- Train approach warning signals given by watchperson/lookout and the proper procedures upon receiving a train approach warning

The safety card issued by SDTI upon completion of roadway worker safety training must be carried at all times while on SDTI property or railroad right-of-way. Additionally, numbered RWP stickers issued by SDTI to contractor employees upon completion of roadway worker safety training must be visible on each roadway worker’s hard hat while on SDTI property or railroad right-of-way. Roadway worker training records are maintained for a minimum of three years within employee’s department or with the contracted third-party training provider in the case of contractors.

Federal and state government agencies are involved with the safe design, construction, maintenance, and operation of the SDTI system. The System Safety Manager, under the direction of the COO-Rail, is the primary contact person for all matters concerning safety at SDTI.

4.2.4 Contractor Safety Program

SANDAG contracts work for regional rail construction and capital improvement projects. The contractor personnel are not directly under the jurisdiction of SDTI but follow the requirements specified in SANDAG bid documents as to the roles and responsibilities of contractors. A SANDAG project engineer is responsible for providing scope of work orientation to the contractor in pre-bid meetings. All contractor personnel are instructed on the Roadway Worker Protection Program, which identifies responsibilities and restrictions on or near the right-of-way. Contractor training records are maintained by the MTS Right-of-Way Engineer. Contractor personnel are not allowed to enter the right-of-way until a right-of-entry permit is submitted to the Director of Rail Transportation for notice of intent to enter the right-of-way, location of work, equipment used on right-of-way, and nature of work. The Director of Rail Transportation reviews and approves all requests. SANDAG must coordinate any contractor work performed on the right-of-way that may impact revenue operations with MTS.

4.2.5 Personal Electronic Device Use

SDTI maintains a zero-tolerance policy, which prohibits the use of personal electronic devices (PEDs). This policy is in accordance with the requirements of CPUC General Order 172, Section 5. The policy mitigates the use of PEDs by employees and contractor personnel responsible for operating or controlling revenue and nonrevenue vehicles or performing work on or near the SDTI right-of-way.

SDTI Rule 1.4.9 (Restrictions on Use of Personal Cell Phones) and Standard Operating Procedure 101.27 (Use of Personal Electronic Devices While On-Duty) provides instructions and outlines policy regarding the use of PEDs. One incident of noncompliance with the established rules and procedures will result in employee termination.

SDTI uses a video-based monitoring system in the operating cabs and other areas of each LRV. This system supplements the random monitoring and enforcement of its operating rules, policies, and procedures, including those that govern the use of electronic devices in compliance with General Order 172. A representative sample is monitored and logged by Central Control Supervisor or designee as well as reviewed when there is a derailment, collision, complaint against the operator, a report of noncompliance with personal electronic device policy, security events, to augment efficiency testing, or any other event deemed necessary. The video-based enforcement and monitoring log will be maintained for a period of three (3) years.

5.0 ABBREVIATIONS AND DEFINITIONS

ACCEPTABLE RISK	A determination made that the probability of an incident or scenario occurring is unlikely and the severity of its consequence is negligible.
ACCOUNTABLE EXECUTIVE	Single, identifiable person who has the ultimate responsibility for carrying out the Public Transportation Agency Safety Plan of a transit agency; responsibility for carrying out the agency's Transit Asset Management Plan; and control and direction over the human and capital resources needed to develop and maintain both the agency's Public Transportation Agency Safety Plan, in accordance with 49 U.S.C. 5329 (d) and the agency's Transit Asset Management Plan in accordance with 49 U.S.C. 5326.
Assault on transit worker	A circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with reckless disregard for safety of human life, interferes with, disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker
CDC	Centers for Disease Control and Prevention of the United States Department of Health and Human Services
CHIEF SAFETY OFFICER	An adequately trained individual who has responsibility for safety and reports directly to a transit agency's chief executive officer, general manager, president, or equivalent officer.
CONTRACTOR	An entity that performs tasks required by this part on behalf of the oversight or rail transit agency.
CORRECTIVE ACTION PLAN	A plan developed by the rail transit agency that describes the actions the rail transit agency will take to minimize, control, correct, and/or eliminate hazards. Further, it includes the schedule for implementing for those actions.
EVENT	Any accident, incident or occurrence.
FTA	Federal Transit Administration, an operating administration within the United States Department of Transportation.
HAZARD	Any real or potential condition that can cause injury, illness or death; damage to or loss of the facilities, equipment, rolling stock or infrastructure of a public transportation system; or damage to the environment.

HIGHWAY RAIL GRADE CROSSING	(1) a location where a public highway, road, or street, or a private roadway, including associated sidewalks, crosses one or more railroad tracks at grade; or (2) a location where a pathway is dedicated for the use of non-vehicular traffic, including pedestrians, bicyclists, and others, that is not associated with a public highway, road, or street, or a private roadway, crosses one or more railroad tracks at grade.
HIGHWAY USER	Automobiles, buses, trucks, motorcycles, bicycles, farm vehicles, pedestrians, or any other mode of surface transportation motorized and un-motorized.
INCIDENT	An event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency
INDIVIDUAL	A passenger, employee, contractor, other rail transit facility worker, pedestrian, trespasser, or any other person on RTA property.
INVESTIGATION	The process of determining the causal and contributing factors of ant, incident or hazard, for the purpose of preventing recurrence and mitigating risk.
JOINT SAFETY COMMITTEE	Union labor-selected frontline voting members of an equal number of management representatives responsible for approving the ASP and any updates to the ASP.
LIGHT RAIL VEHICLE (LRV)	The rail transit agency's rolling stock, including, but not limited to passenger and maintenance vehicles.
NATIONAL PUBLIC TRANSPORTATION SAFETY PLAN	The plan to improve the safety of all public transportation systems that receive federal financial assistance under 49 U.S.C. Chapter 53.
OCCURRENCE	An event without any personal injury in which any damage to facilities, equipment, rolling stock or infrastructure does not disrupt the operations of a transit agency.
PASSENGER	A person who is onboard or in the process of boarding or alighting from a rail transit vehicle.
PERFORMANCE TARGET	Quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FTA.
PROGRAM STANDARD	A written document developed and adopted by the oversight agency, that describes the policies, objectives,

	responsibilities, and procedures used to provide rail transit agency safety and security oversight.
PROPERTY	Property that is used by SDTI and may be owned, leased, or maintained by SDTI.
PUBLIC TRANSPORTATION AGENCY SAFETY PLAN (ASP)	Documented comprehensive agency safety plan for a transit agency that is required by 49 U.S.C. 5329 and 49 CFR 673.
RAIL FIXED GUIDEWAY SYSTEM	As determined by FTA, any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that: (1) Is not regulated by the FRA (2) Is included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas (49 U.S.C. 5336); or (3) Has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed guideway route miles to receive funding under FTA's formula program for urbanized areas (49 U.S.C. 5336).
RAIL TRANSIT AGENCY (RTA)	An entity that operates a rail fixed guideway system.
RISK	Composite of predicted severity and likelihood of the potential effect of a hazard.
RISK MITIGATION	A method or methods to eliminate or reduce the effects of hazards.
SAFETY ASSURANCE	Processes within a transit agency's Safety Management System that functions to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information.
SAFETY EVENT	An unexpected outcome resulting in injury or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.
SAFETY MANAGEMENT POLICY	A transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees in regard to safety.

SAFETY MANAGEMENT SYSTEM (SMS)	Formal, top-down organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices and policies for managing risks and hazards.
SAFETY MANAGEMENT SYSTEM EXECUTIVE	Chief Safety Officer or equivalent.
SAFETY PERFORMANCE TARGET	A performance target related to safety management activities.
SAFETY PROMOTION	Combination of training and communication of safety information to support SMS as applied to the transit agency's public transportation system.
SAFETY RISK ASSESSMENT	Formal activity whereby a transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.
SAFETY RISK MANAGEMENT	Process within a transit agency's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing and mitigating safety risk.
SANDAG	San Diego Association of Governments.
SERIOUS INJURY	Any injury which (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes or noses); (3) causes a severe hemorrhage, nerve, muscle or tendon damage; involves an internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.
STATE	A state of the United States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, Guam, American Samoa, and the Virgin Islands.
STATE OF GOOD REPAIR	Condition in which a capital asset is able to operate at a full level of performance.
STATE SAFETY OVERSIGHT AGENCY	An agency established by a state that meets the requirements and performs the functions specified by 49 U.S.C. 5329 (e) and the regulations set forth in 49 CFR part 674.
TRANSIT AGENCY	Operator of a public transportation system.

TRANSIT ASSET MANAGEMENT PLAN	Strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation as required by 49 U.S.C. 5326 and 49 CFR part 625.
UNACCEPTABLE RISK	A determination made that a condition or hazard that will inevitably promote Safety Events continuously or frequently with critical or catastrophic effects.

6.0 REVISION TABLE

Revision No.	Issue Date
0	July 2020 (First Issue)
1	January 2022 - Section 1.2.1 System Description: Mid-Coast Extension (Revenue Service November 2021)
2	January 2023 – Included all requirements of Bipartisan Infrastructure of Law (2021): Joint labor/management Committee, de-escalation training, Infectious Diseases Exposure Plan, trending based on 3-year rolling average of NTD data, risk reduction programs for reducing Safety Events, and transit worker assaults.
3	January 2025 - Section 1.2.1 System Description: Copper Line (Revenue Service September 2024) April 2024 – Included all 49 CFR 673 changes: Joint Safety Committee membership, responsibilities and procedures. Revised Safety Management Policy Statement to include Joint Safety Committee Transit Worker Assault Risk Reduction Program Risk Based Inspection Program (RBI)
4	

7.0 REGULATORY REFERENCE DOCUMENTS

Document Reference Number	Title
49 CFR 42526 and 42529	Statement of Agency Policy Requires That Rail Transit Agencies Report Safety Events Which Meet Reporting Thresholds That Occur on Shared- Or Joint-Use Heavy Rail Segments Be Reported
49 USC 5329 (b)	Reports of Safety Events on Railroads
49 CFR 670	National Public Transportation Safety Plan
49 CFR Part 672	Public Transportation Safety Certification Training Program
49 CFR Part 673	Public Transportation Agency Safety Plan
49 CFR Part 674	State Safety Oversight Program
General Order 22-B	Regulations Governing Reports of Safety Events on Railroads
General Order 26-D	Clearances on Railroads and Street Railroads with Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways, and Streets
General Order 33-B	Construction, Reconstruction, Maintenance and Operation of Interlocking Plants at Crossings, Junctions, Drawbridges, in Yards and at Sidings of Railroads and Street Railroads
General Order 72-B	Construction and Maintenance of Crossings at Grade of Railroads with Public Streets, Roads and Highways
General Order 75-D	Standards for Warning Devices for At-Grade Highway-Rail Crossings
General Order 88-B	Rules for Altering Public Highway-Rail Crossings
General Order 95	Overhead electric line construction
General Order 108	Filing of Railroad Operating Department Rules
General Order 110	Radio Communications in Railroad Operations
General Order 118-A	Construction, Reconstruction and Maintenance of Walkways and Control, of Vegetation Adjacent to Railroad Tracks
General Order 127	Maintenance and Operation of Automatic Train Control Systems-Rapid Transit Systems
General Order 128	Construction or Underground Electric Supply and Communication Systems
General Order 135	Occupancy of Public Grade Crossings by Railroads
General Order 143-B	Design, Construction and Operation of Light Rail Transit systems
General Order 161	Transportation of Hazardous Materials by Rail
General Order 164-F	State Safety Oversight of Rail Fixed Guideway Systems
General Order 172	Use of Personal Electronic Devices by Employees Of Rail Transit Agencies And Rail Fixed Guideway Systems
General Order 175-A	Roadway Worker Protection Provided by Rail Transit Agencies and Rail Fixed Guideway Systems
CPCU Program Standards Procedures Manual	Safety and Security Oversight of Rail Fixed Guideway System

APPENDIX A:

APPROVAL OF PTASP BY JOINT SAFETY COMMITTEE

Metropolitan Transit System

Via Email

SDTI Joint Safety Committee

On February 11, 2026, the Joint Safety Committee (JSC) convened to review the updated requirements of the Public Transportation Agency Safety Plan (PTASP) as specified in Part 673, which was issued in April 2024. This review included revisions to the Section 3 Maintenance Inspection Program and the Internal Safety and Security elements. The JSC has approved the 2026 Version 4 of the PTASP, which is attached. MTS will present this plan to our Board of Directors for formal approval of the 2026 Version 4 PTASP.

The 2026 Version 4 Public Transportation Agency Plan has been approved as recorded below.

Joint Safety Committee
Management Committee Members

Fabeann Soberg, JSC Chair – Management

Joint Safety Committee
Labor Committee Members

Joshua Martin, JSC Co-Chair – Labor

Enclosure: 2026 Version 4 PTASP
Joint Safety Committee Meeting Notes

cc: Sharon Cooney, Chief Executive Officer
Brian Riley, Chief Operating Officer, MTS Rail Division
Joey Bigornia, CPUC Representative

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San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for nine cities.

APPENDIX B:

Joint Safety Committee Meeting Minutes

Joint Labor Safety Committee Meeting Minutes

Date and Time: Wednesday, February 11, 2026, at 1:00PM (JSC)
Location: MTS SDTI Conference Room - 1255 Imperial Avenue, San Diego, CA

Management Committee Members

Fabeann Soberg, Chair System Safety Management

Edward Graham, Director of Transportation

Union Committee Members

Joshua Martin, Co-Chair Code Compliance Inspector

Edward Perry LRV Electromechanic

DISCUSSION SUMMARY

The following summarizes the highlights of the information presented and topics of discussion during the Joint Safety Committee meeting.

1. Introductions
2. The meeting was called to order by Committee Chair Fabeann Soberg, a sign-in sheet was circulated, and attendees introduced themselves by name, title, and the union they were representing.
3. Reviewed Public Transportation Agency Safety Plan (PTASP) 2026 Revision 4
4. Reviewed revisions to the Section 3 Maintenance Inspection Program and the Internal Safety and Security elements.

This summary was:
Prepared by Fabeann Soberg, Committee Chair

Enc: PTASP- Approval Letter by the Committee
2025 PTASP Revision 4

APPENDIX C:

SAFETY PERFORMANCE MEASURES AND TARGETS

Appendix C:

Safety Performance Measures and Targets

SDTI currently produces many types of indicators that are reported at levels within MTS and SDTI, as well as to the CPUC and the FTA. SDTI safety performance measures are established requirements per the FTA's National Public Transportation Safety Plan. The Bipartisan Infrastructure Law of 2021 requires transit agencies to develop a risk reduction program to improve safety by reducing the number and rates of accidents, injuries, and assaults on transit workers based on data submitted to the National Transit Database (NTD) by identifying targets that are specific, measurable, attainable, relevant, and time-bound (SMART). These measures will be evaluated using a three-year rolling CY average based on data submitted to NTD, with a reduction relative to the previous three CY averages. SDTI risk reduction program addresses safety performance targets in the following five categories:

Fatalities: the total number of reportable fatalities and the rate per total vehicle revenue miles by mode.

Injuries: the total number of reportable injuries and the rate per total vehicle revenue miles by mode.

Safety Events: the total number of reportable events and the rate per total vehicle revenue miles by mode.

System Reliability: mean distance between major mechanical failures between major mechanical failures by mode.

Transit Worker Assaults: No performance targets set by NTD for assaults on transit workers.

Average Annual Safety Performance Measures	Targets
Fatalities	≤ 5
Fatalities Rate Per 100,000 Revenue Miles	≤ 0.13
Injuries	≤ 71
Injuries Rate Per 100,000 Revenue Miles	≤ 1.65
Safety Events	≤ 99
Safety Events Rate Per 100,000 Revenue Miles	≤ 2.29
System Reliability	≥ 12,593,040
System Reliability Rate Per 100,000 Revenue Miles	≥ 16,972
Transit Worker Assaults	N/A
Transit Worker Assaults Rate Per 100,00 Revenue Miles	N/A
Emergency Brake	≤ 462
Emergency Brake Rate Per 100,000 Revenue Miles	≤ 10.74

APPENDIX D:

Transit Worker Assault Risk Reduction Plan

Metropolitan Transit System

Transit Worker Assault Risk Reduction Program

2024



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Purpose

The purpose of the MTS Trolley Transit Worker Assault Risk Reduction Program is to outline current policies, procedures, training, best practices, and equipment used to reduce both the likelihood and severity of assaults on transit workers in compliance with 49 CFR 673.20.

Safety Risk Reduction Program Requirements (49 CFR 673.20)

(a) Each large, urbanized area provider must establish a safety risk reduction program for transit operations to improve safety performance by reducing the number and rate of assaults on transit workers.

(1) The safety risk reduction program must, at a minimum, address the reduction and mitigation of assaults on transit workers that includes consideration of safety risk mitigations consistent with § 673.20(a)(3) and implementation of safety risk mitigations consistent with § 673.20(a)(4).

(3) When carrying out the safety risk mitigation process under § 673.25(d) for risk relating to assaults on transit workers, each large, urbanized area provider must consider deployment of assault mitigation infrastructure and technology on transit vehicles.

(4) When a Safety Committee recommends safety mitigations it has determined would reduce assaults on transit workers and injuries to transit workers based on a safety risk analysis conducted under § 673.25(c), the transit agency must implement one or more of those mitigations to reduce risk to an acceptable level, unless the Accountable Executive determines the mitigation will not improve the agency's overall safety performance.

Bipartisan Infrastructure Law (BIL) Definitions

Transit Worker

Any employee, contractor, or volunteer working on behalf of the transit agency.

Assault

A circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with, disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

State Laws Protecting Transit Workers

CA Pen. Code § 241.3:

When an assault (an unlawful attempt, coupled with a present ability, to commit a violent injury on the person of another) is committed against any person on the property of, or on a motor vehicle of, a public transportation provider, the offense shall be punished by a fine not to exceed two thousand dollars ($2,000), or by imprisonment in a county jail not to exceed one year, or by both the fine and imprisonment. As used in this section, "public transportation provider" means a publicly or privately owned entity that operates, for the transportation of persons for hire, a bus, taxicab, streetcar, cable car, trackless trolley, or other motor vehicle, including a vehicle operated on stationary rails or on a

track or rail suspended in air, or that operates a school bus. As used in this section, “on the property of” means the entire station where public transportation is available, including the parking lot reserved for the public who utilize the transportation system.

CA Pen. Code § 243.3:

When a battery (any willful and unlawful use of force or violence upon the person of another) is committed against the person of an operator, driver, or passenger on a bus, taxicab, streetcar, cable car, trackless trolley, or other motor vehicle, including a vehicle operated on stationary rails or on a track or rail suspended in the air, used for the transportation of persons for hire, or against a school bus driver, or against the person of a station agent or ticket agent for the entity providing the transportation, and the person who commits the offense knows or reasonably should know that the victim, in the case of an operator, driver, or agent, is engaged in the performance of his or her duties, or is a passenger the offense shall be punished by a fine not exceeding ten thousand dollars ($10,000), or by imprisonment in a county jail not exceeding one year, or by both that fine and imprisonment. If an injury is inflicted on that victim, the offense shall be punished by a fine not exceeding ten thousand dollars ($10,000), or by imprisonment in a county jail not exceeding one year or in the state prison for 16 months, or two or three years, or by both that fine and imprisonment.

Train Operator Training

Customer Service Skills:

All train operators complete an 11-week training program before going into individual revenue service. During this time, employees are taught various aspects of providing good customer service skills to all passengers. This includes:

- Take the opportunity to inform boarding passengers of any possible delays or detours
- Offer empathy, courtesy, and patience- and a solution if possible
- Maintain a calm and soft yet firm voice
- Avoid using your title or authority
- Do not offer lengthy explanations or excuses

De-Escalation / Conflict Resolution Skills:

Throughout the day, Train Operators and other Trolley employees are likely to encounter people and situations that can be difficult to address without some degree of conflict. These include passengers who are intoxicated, passengers who play loud music, passengers who bring unauthorized items onto the trolley (i.e. shopping carts); those who use obscene or abusive language, etc. To safely address these types of issues, Train Operators are taught to:

- Treat people with dignity by showing respect, even if you disagree with them
- Keep your distance from passengers
- Observe and report any aggressive behavior
- Enforcement of Agency Policy falls under the purvey of the Security Department

Inform Not Enforce Procedures:

Train Operators and other trolley employees are not required to enforce agency policy. Trolley employees are only required to observe and report. Enforcement of agency policy falls under the purvey of the Security Department. In the event a passenger continues to argue or escalate the situation, Train Operators are taught to:

- Call Central Control for direction or assistance. Remain in the cab or leave the area if necessary.
- If a situation or passenger's behavior jeopardizes safety, secure the train and contact Central Control for assistance. Strive to keep calm and avoid calling attention to the passenger or situation.
- If a passenger refuses to deboard an out-of-service train, operators must return to the cab and notify Central Control. Security will remove the individual once the trolley returns to the yard.

Maintenance Employee Training

All front-line maintenance employees: Maintenance of Way (MOW), Flagpersons, Facilities workers and NMS employees receive de-escalation training. This includes interacting with passengers upset about a vehicle breakdown, answering passenger questions while at a transit center, engaging individuals who may be trespassing in unauthorized areas, encountering a sleeping passenger inside the trolley when the trolley is going out of service or being cleaned at a terminal, etc. Maintenance employees are taught to:

- Leave the area if an individual seems threatening or aggressive
- Report the situation immediately
- Station duties can be postponed if a threatening individual is occupying the platform or surrounding area



Train Operator's Manual Policies

Rule 1.4.2 Employees must treat all passengers and other employees with courtesy; avoid arguments and exercise patience, forbearance and self-control under all conditions. They must be attentive and helpful without being impertinent or offensive.

6.8.1 If there is a disturbance on a train, Train Operator must notify the Controller and, if necessary, request security or police.

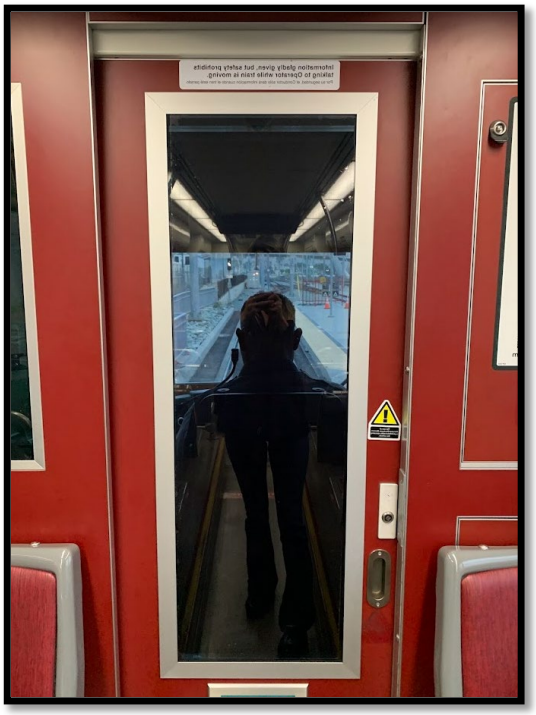
6.8.2 Train Operators should avoid becoming directly involved unless it becomes necessary for the safety of other passengers.

6.8.3 Train Operators must notify the Controller when the disturbance has been cleared.

6.9 Disturbance at a Station: Train Operators observing a disturbance at a station must report it to the Controller and, if necessary, request security or police. Train Operator must make every effort to avoid risk to themselves, passengers or equipment**.**

Light Rail Vehicle Equipment

All light rail vehicle operating cabs are secured with a door lock. A company issued key must be used to enter the cab. The center panel of the door is glass, allowing the train operator to see passenger activity.



Emergency Silent Alarm

Each Light Rail Vehicle (LRV) has a Silent Emergency Alarm on both operating ends. The Train Operator can activate it by pressing a hidden pushbutton. This triggers a visual and audible alert at Central Control, indicating which LRV activated the alarm. When the alarm is triggered, a hidden microphone in the cab turns on, and the cab radio speaker is silenced to ensure private communication for Central Control.



Camera Systems

All Light Rail Vehicles (LRVs) are equipped with modern camera systems that monitor the vehicle's interior and exterior. Each LRV has twelve cameras, one focused on the operating cab. These camera systems include hard drive recorders that store video footage for 10 days. The recorded video can be wirelessly downloaded to a remote server, which can be preserved for up to one year. For long-term storage, footage can be saved on the agency's shared network, ensuring security and accessibility.



Fleet Communication and Management System

The LRVs are equipped with a fleet management system that is an actively manage by Operations Central Control. This system includes:

1. Real-time vehicle tracking via Global Positioning System (GPS)
2. Wireless data communications
3. Automated Vehicle Location (AVL) map and data displays

The Operations Control Center (OCC) is staffed twenty-four hours a day, seven days a week, and provides twenty-four-hour service to passengers and employees. The primary functions established for the OCC Facility and personnel are to provide for the safety and security of SDTI personnel and passengers, notify all emergency agencies for situations on the SDTI system requiring emergency response, maintain system-wide supervisory control by monitoring train operations and facilities that support the system, and to document incidents that result in system delays, injuries, or damages.

Radio

In addition to the in-cab radio, all Train Operators and field maintenance personal are issued handheld radios at the beginning of each shift. Radios are used to communicate with Central Control regarding routine duties or in case of an emergency.



Passenger Safety Team

The Transit Security Passenger Safety Department is staffed with MTS Code Compliance Inspectors (CCIs) and contracted security personnel. The Transit Enforcement Department Passenger Safety Team

is made up of four CCIs, one CCI Supervisor. The team is deployed throughout the system based on the data analyst intel conducts ongoing security risk analyses and meets with safety staff monthly to maintain a secure environment for passengers, employees, and facilities by identifying emerging significant security risks and formulating solutions and mitigations. Transit Security regularly sweep LRV and respond to requests occurring onboard trains to handle disruptive passengers and any other high priority incidents. Transit Team collaborates with local law enforcement for fare saturations to remove fare evaders and conduct warrant checks.



Assault Tracking & Reporting

Internal Database

MTS developed an internal tracking database to track all assaults on transit workers. The database tracks basic operational information including the date, time, location, employee ID etc., as well as law enforcement status including the case number, charges filed, prosecution, trial, and sentencing. The information on the database is used to assist with allocating security resources throughout the system as well as facilitating the prosecution of crimes against transit workers.

National Transit Database (NTD)

MTS reports all applicable transit worker assaults to the National Transit Database (NTD) monthly. This includes both major events (injury requiring medical treatment) and minor events (non-injury). These assaults are reported for each mode of transportation and include both physical and non-physical assaults.

Reporting

When an employee is assaulted on property or while on-duty the following information must be collected and submitted to the Operational and Crime Data Analyst:

i. Employee Name and ID
ii. Incident Location
iii. Video footage

iv. Description of Injuries to Employee
v. Suspect Information
vi. Notification to Security or San Diego Police Department and completion of any reports

Transit Worker Support Post Assault

Workers Comp Waiting Period

California has a 3-day waiting period before workers' compensation benefits are paid for injuries sustained on the job. MTS waives the 3-day waiting period when the injury was the result of being assaulted while on duty.

Employee Assistance Program

MTS offers an Employee Assistance Program (EAP) which allows transit workers to receive free confidential professional counseling/therapy sessions. These sessions are available 24 hours a day, 7 days a week, and can be conducted face to face, via tele-video or chat therapy. Counselors can help with a wide range of issues including Anxiety, depression, stress management, grief, self-esteem, family relationship support, etc.



APPENDIX E:

MTS Rail Joint Safety Committee Plan

MTS Rail Joint Safety Committee Plan



Approved by MTS Board of Directors on 6/18/2026

Revision Log

Revision No.	Prepared by	Date (mm-dd-yyyy)	Comment
1	Fabeann Soberg	01-28-2025	Final Approved Draft

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1.0 PURPOSE

A. To define the roles, conduct and responsibilities of the Metropolitan Transit System (MTS RAIL) Joint Safety Committee.
B. To identify eliminations and/or mitigations for identified hazards using risk-based decision making and ensure the effectiveness of safety policies and procedures that apply to MTS RAIL.
C. To meet the requirement of Bipartisan Infrastructure Law on the Public Transportation Agency Safety Plan 49 U.S.C. 5329d, including but not limited to reviewing and approving changes to the PTASP.

2.0 AUTHORITY

A. Title 49 CFR Part 673 - Public Transportation Agency Safety Plan
B. Tile 49 U.S.C § 5329 - Public Transportation Safety Program
C. MTS RAIL's Public Transportation Agency Safety Plan (PTASP)

3.0 PROCEDURES

3.1 Scope

To establish and administer the statutorily required Safety Committee that is jointly comprised of an equal number of management and union members. The committee will identify risk-based corrective measures needed to eliminate or control recognized safety and health hazards to transit operations and workforce, annually review and approve MTS RAIL's Public Transportation Agency Safety Plan, set annual safety performance targets for the safety risk reduction program, and other work that the committee might decide.

3.2 Safety Committee Members

A. The safety committee at a minimum will:
1. Be convened by a joint labor-management process.
2. Consist of an equal number of:
• Frontline employee representatives, selected by a labor organization representing the plurality of the frontline workforce employed by the recipient

or, if applicable, a contractor to the recipient, to the extent frontline employees are represented by labor organizations; and

- Management representatives

B. Six (4) Management representatives will be present:
   1. Director of Transportation
   2. Director of Facilities
   3. Manager of Special Operations
   4. System Safety Manager of Rail (Chair)

C. Six (4) Frontline Union representatives will be present. Members participating in their capacity as union members will suffer no loss in compensation for time spent in Committee meetings.
D. Alternates or designees can attend meetings when scheduling conflicts occur.
E. Subject matter experts, including other transit workers, may be invited to serve in an advisory capacity as needed.
F. All members of the committee will complete the MTS Rail Joint Safety Committee Training.

3.3 Joint Safety Committee Meetings

A. The Committee will meet quarterly beginning on March 13, 2025. Additional meetings can be scheduled, if necessary.
   1. Meetings will be rescheduled to the next available date under emergency conditions.
B. The Committee will use the meetings to establish and review performance targets for the safety risk reduction program using a 3-year rolling average of the data submitted by MTS RAIL to the national transit database (NTD) required by § 673.11(a)(7)(iii).
C. Topics of discussion will include:
   1. Safety deficiencies that may affect MTS RAIL personnel physical, mental, or psychological state.
   2. Identification of risk-based mitigation/recommendations necessary to reduce the likelihood and severity of consequences identified through the agency's safety risk assessment.
   3. Identification of mitigations or strategies that may be ineffective, inappropriate, or not implemented as intended.

4. Methods to reduce numbers and rates of accidents, injuries, and assaults on transit workers based on MTS RAIL incidents and the NTD database.

D. Committee Meeting Agenda/Minutes

1. Meeting agenda will be attached to the meeting invite.
2. Discussion during the meeting shall be tracked in the Committee meeting minutes and processed.
3. Meeting minutes will be sent out as soon as possible following each meeting.
4. Meeting minutes will be maintained by the System Safety Department for recordkeeping.

4.0 RESPONSIBILITIES

4.1 System Safety Department is responsible for:

A. Preparing and maintaining the agenda and the meeting minutes that will document action to be taken, attendance, discussion points, and votes, when required.

1. Actions are to be tracked and discussed in subsequent meetings until final resolution.

B. Scheduling safety committee in accordance with 3.3.A, above, with the meeting location, time, and date.

C. When the Committee has come to a majority vote on issues requiring Board/COO notification, this communication with the Board of Directors or the COO from the Safety Committee will be delivered by a memo from the Chief Safety Officer.

4.2 Committee representatives are responsible for:

A. Identifying and recommending safety risk mitigations necessary to reduce the likelihood and severity of potential consequences identified through the transit agency's safety risk assessment, including safety risk mitigations associated with any instance where the transit agency did not meet an annual safety performance target in the safety risk reduction program.

B. Identifying safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended, including safety risk mitigations associated with any instance where the transit agency did not meet an annual safety performance target in the safety risk reduction program.

C. Identifying safety deficiencies for purposes of continuous improvement as required at § 673.27(d), including any instance where the transit agency did not meet an annual safety performance target in the safety risk reduction program.

D. Receive, study, and act upon the complaints of employees concerning their health and safety during their assigned work.

E. Reviewing accidents and quarterly accident statistics to provide insights and suggestions upon how accidents may be prevented from reoccurring.

F. Analyzing transit workers' risks of suffering assaults within MTS RAIL and recommending mitigation strategies including infrastructure improvements which would reduce assaults on and injuries to workers.

G. Reviewing and approving, on a schedule that meets any deadlines imposed by the Federal Transit Administration or any other government entity, changes to the PTASP.

4.4 Committee Review and Approval of MTS RAIL's PTASP:

The Chief Safety Officer shall annually review the PTASP for required changes. If revisions are required, the revised PTASP will be submitted to the Joint Safety Committee for review. After review, the Joint Safety Committee will approve the PTASP plan by majority vote. Once the PTASP has been approved by the Committee, the safety plan will be officially approved per section 3.3 of the PTASP and then submitted to the CPUC.

5.0 DECISION MAKING

The Committee will make decisions by majority vote. A quorum of eight (8) members must be present for the Committee to make a decision. Votes will be recorded as Yes, No, or Abstain. Votes will be individually recorded unless the vote is unanimous. Votes will be recorded in the meeting minutes. Should safety committee members reach an impasse on an issue within their purview as prescribed by the Federal Transit Administration's Final Rule and Regulations (April 11, 2024), the parties shall proceed to a binding neutral third-party arbitration process.

6.0 INSPECTION AND INFORMATION ACCESS

6.1 Joint Safety Inspections

The Committee shall have the right to perform inspections of MTS RAIL facilities and vehicles for the investigation of safety hazards and following any accident or other safety or security incident that falls under the scope of committee responsibilities no later than forty-eight (48) hours after the accident or incident concludes.

6.2 Information Access

The Committee will have access to all documents, electronically stored information, and other records that are held or maintained either by management or by the Union and that are reasonably relevant to the Committee's work. This provision will not require management or the Union to disclose any information that is to remain confidential by law or under the collective bargaining agreement between management and the Unions.

7.0 DISPUTE RESOLUTION

The safety committee will not designate the Accountable Executive to resolve any disputes within the Safety Committee. Disputes regarding the meaning and or interpretation of this Joint Safety Committee plan will be subject to the grievance and arbitration procedure contained in the collective bargaining agreement between the parties. If a dispute goes to arbitration under that procedure, management and the Union will accept the earliest mutually agreeable arbitration date and will ask the arbitrator to render a decision within thirty (30) days of the close of the arbitration hearing.

8.0 SAFETY RISK REDUCTION PROGRAM MITIGATIONS

§673.11(7)(iv) SAFETY RISK MITIGATIONS INDENTIFIED AND RECOMMENDED BY THE JOINT SAFETY COMMITTEE AS DESCRIBED IN §673.25(d)(5)

When the joint safety committee identifies and recommends safety risk mitigations relating to vehicular and pedestrian safety events involving transit vehicles §673.11(7)(i) or assaults on transit workers §673.11(7)(ii) based on a safety risk assessment, these safety risk mitigations will be listed in the joint safety committee meeting minutes appendix.

When the Safety Committee recommends a safety risk mitigation unrelated to the safety risk reduction program, and the COO of Rail decides not to implement the safety risk mitigation, the COO of Rail must prepare a written statement explaining their decision, pursuant to recordkeeping requirements at §673.31. The General Manager must submit and present this explanation to the transit agency's Joint Safety Committee and Board of Directors.

APPENDIX F:

MTS BOARD MEETING MINUTES & FINAL BOARD AGENDA
(April 16, 2026)

APPENDIX G:

APPROVAL OF PTASP VERSION 4 BY MTS BOARD OF DIRECTORS (April 16, 2026)

Bus Safety Plan

San Diego Transit Corp

(Public Transportation Agency Plan pursuant to 49 CFR 673)







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Annual Safety Performance Assessment

Risk Reduction Program

MTS Infectious Disease Control and Prevention Plan

Acronyms

ADA	Americans with Disabilities Act
Caltrans	California Department of Transportation
CBA	Collective Bargaining Agreements
CEO	Chief Executive Officer
CHP	California Highway Patrol
COO	Chief Operating Officer
CSO	Chief Safety Officer
EH&S	Environmental Health and Safety
EPN	Employer Pull Notice
KPI	Key Performance Indicators
NTD	National Transit Database
OEM	Original Equipment Manufacturer
PIP	Performance Incentive Program
PPE	Personal Protective Equipment
PUC	Public Utilities Commission
SANDAG	San Diego Association of Governments
SOS	Service Operations Supervisor
SPT	Safety Performance Targets
SRC	Safety Review Committee

1 Bus Agency Safety Plan Overview

1.1 Agency Information

The purpose of this Bus Agency Safety Plan discusses how safety is managed for San Diego Metropolitan Transit System (MTS) directly operated fixed route bus transportation services. The Agency Safety Plan addresses all applicable requirements and standards as set forth in FTA's Public Transportation Safety Program and the National Public Transportation Safety Plan.

MTS is a California transit district that operates multiple modes of transit: light rail transit (Rail) and fixed route/ADA complementary paratransit bus operations (Transit). The agency has three major divisions: Administration, Rail and Transit[1]. The MTS Chief Executive Officer (CEO) is responsible for managing all aspects of the agency, with direction from the Board of Directors. Because of the distinct differences in operations, MTS has prepared a Safety Plan for each individual division: Rail and Transit. This is MTS's Bus Agency Safety Plan (Table 1).

Table 1: Agency Information

Agency Information	
Transit Agency Name	MTS
Transit Agency Address	1255 Imperial Ave Suite 1000, San Diego, CA 92101
Name and Title of Accountable Executive	Sharon Cooney, Chief Executive Officer (CEO)
Name of Chief Safety Officer (CSO) or Safety Management System (SMS) Executive	Jared Garcia, Manager of Safety
Modes of Service Covered By This Plan	Directly Operated Fixed Route Bus
List Of All Funding Types:	5307, 5337, 5339
Mode(s) of Service Provided by the Transit Agency (Directly Operated or Contracted Service)	Directly Operated Light Rail, Directly Operated Fixed Route Bus, Contracted Fixed Route Bus, Contracted Commuter

[1] Historically, the Bus division was run by a separate entity, San Diego Transit Corporation (SDTC). SDTC is a wholly-owned subsidiary of MTS. While some operations continue under the SDTC entity (e.g., legacy property ownership or agreements), in practical terms it is operated as the Bus division of MTS.

	Bus, Contracted Paratransit, Contracted Paratransit Taxi
Does the agency provide transit services on behalf of another transit agency or entity?	No
Description of Arrangement(s)	N/A

MTS operates in southern San Diego County with a fleet of approximately 800 buses. MTS operates Rapid Express, Rapid, Express, Urban Frequent, Urban Standard, Community Circulator, Rural and ADA complementary paratransit. Service is directly operated by SDTC and operated by private contractors, First Transit and Transdev (Table 2).

Table 2: Services Operated

Service Types Operated By Each Entity			
Service Type	**MTS/SDTC**	**First Transit**	**Transdev**
Fixed Route	X		X
Commuter			X
Rural			X
Fixed Route Mini		X	
Paratransit / Taxi		X	

MTS Bus operates over a 716 square-mile service area, with a combined population of more than two million people within the cities of San Diego, Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, National City, Lemon Grove, Poway and Santee, as well as the County of San Diego. Service is provided seven days a week on most routes. Routes serve approximately 4,200 bus stops.

MTS Bus has five bus fleet operating divisions, all of which include operations, maintenance and fueling functions: Imperial Avenue Division (IAD); Kearny Mesa Division (KMD); South Bay Bus Maintenance Facility (SBMF); East County Bus Maintenance Facility (ECBMF); and Copley Park Maintenance Facility (CPMF). IAD and KMD are operated by SDTC. SBMF and ECBMF are operated by private contractor Transdev. CPMF is operated by private contractor First Transit.

Service began in 1886 as the San Diego Streetcar Company. Over the years, this and several other entities were merged into the San Diego Electric Railway (later, the San Diego Transit Corporation (SDTC)). The City of San Diego purchased SDTC from private ownership in 1967, and transferred it to the Metropolitan Transit Development Board (MTDB) in 1985. In 2002, Senate Bill 1703 merged MTDB's planning, financial programming, project development and construction functions into the region's metropolitan planning organization, the San Diego Association of Governments (SANDAG). In 2005, MTDB changed its name to the San Diego Metropolitan Transit System (MTS). The MTS Board of Directors is composed of

members representing the cities of San Diego, Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, National City, Lemon Grove, Poway and Santee, and the County of San Diego.

1.2 Bus Agency Safety Plan Approvals

The Bus Agency Safety Plan has been approved by the Safety Committee, the Accountable Executive, and the MTS Board of Directors (Table 3).

Table 3: Bus Agency Safety Plan Approvals

Bus Agency Safety Plan Approvals		
Name of Entity That Drafted This Plan	San Diego Metropolitan Transit System	
Safety Committee Approval	Signature of Chief Safety Officer	Date of Approval
	Jared Garcia	3/19/2026
Accountable Executive Signature	Signature of Accountable Executive	Date of Signature
		5/21/2026
Approval by the MTS Board of Directors	Signature of Chairperson of the MTS Board of Directors	Date of Approval
		5/21/2026
Certification of Compliance	Name of Individual/Entity That Certified This Plan	Date of Certification
		5/21/2026

1.3 Annual Review, Update, and Safety Performance Assessment

1.3.1 Annual Review of the Bus Agency Safety Plan

At a minimum, this plan will be reviewed and updated annually during the month of January by the Chief Safety Officer. Proposed changes are reviewed by the Safety Committee, Accountable Executive, Executive Management and Key Staff. The Safety Committee will review and approve any changes to this plan before being sent to the Accountable Executive. The Accountable Executive will then review and approve any changes, sign the updated plan, and then forward the plan to the Board of Directors for final review and approval. Updates to this plan may be made when there are:

- Changes to: safety performance targets, safety management policy, safety risk management, safety assurance, and safety promotion;
- Changes to: the Accountable Executive, COO, or CSO;
- Significant changes to service delivery;
- Significant changes to the organizational structure;
- New process/procedures are introduced that impact safety;
- Changes to available resources or priorities that support SMS; and
- Changes required by the Federal Transit Administration (FTA), California Public Utilities Commission (CPUC), California Department of Transportation (Caltrans), San Diego Association of Governments (SANDAG), etc. or other similar oversight agency.

1.3.2 Annual Safety Performance Assessment

MTS conducts an annual safety performance assessment in conjunction with the annual review. This assessment includes a review of the prior year's performance involving the Safety Performance Targets, Key Performance Indicators, and applicable Performance Incentive Program (PIP) goals. The assessment may also include reviewing identified safety deficiencies, or other areas involving safety performance.

Updates made to the Bus Agency Safety Plan will be documented (Table 4).

Table 4: Version Number and Update History of Transit Safety Plan

Version Number and Update History of Bus Agency Safety Plan			
Version Number	Section/Pages Affected	Reason for Change	Date
1.0	All	N/A	July 2020
1.0	All	Annual Review	January 2021
1.0	All	Annual Review	January 2022
2.0	All	Bipartisan Infrastructure Law	February 2023
2.0	All	Annual Review	January 2024
3.0	All	FTA Requirements	January 2025
4.0	Risk Reduction Program	FTA Requirements	March 2026

1.4 Documentation and Recordkeeping

This Bus Agency Safety Plan and documents related to this plan will be maintained for three (3) years after date of creation and be made available upon request by the FTA or other applicable agency having jurisdiction.

2 Safety Performance Targets

2.1 Safety Performance Targets

As required by 49 CFR 673.11(a) (3), this Bus Agency Safety Plan must include performance targets associated with revenue service that are based on the safety performance measures established under the National Public Transportation Safety Plan.

MTS performance targets are calculated using a 3-year rolling average of the data submitted to the National Transit Database (NTD). The safety performance targets are evaluated for each calendar year (January 1 – December 31).

2.2 Safety Performance Target Measures & Definitions

Table 5: Safety Performance Targets

Safety Performance Measures	
Performance Measure	Description
1a - Major Events	This includes all safety and security major events as defined by the NTD.
1b - Major Event Rate	This includes all safety and security major events as defined by the NTD, divided by VRM.
1.1 - Collision Rate (new)	This includes all collisions reported to the NTD, divided by VRM.
1.11 - Pedestrian Collision Rate (new)	This includes all collisions “with a person,” as defined by the NTD, divided by VRM.
1.1.2 - Vehicular Collision Rate (new)	This includes all collisions “with a motor vehicle,” as defined by the NTD, divided by VRM.
2a - Fatalities	This includes all fatalities as defined by the NTD.
2b - Fatality Rate	This includes all fatalities as defined by the NTD, divided by VRM.
2.1 Transit Worker Fatality Rate (new)	This includes all transit worker fatalities as defined by the NTD, including the categories “Transit Employee/Contractor,” “Transit Vehicle Operator,” and “Other Transit Staff,” divided by VRM.
3a - Injuries	This includes all injuries as defined by the NTD.
3b - Injury Rate	This includes all injuries as defined by the NTD, divided by VRM.
3.1 Transit Worker Injury Rate (new)	This includes all transit worker injuries as defined by the NTD, including the categories “Transit Employee/Contractor,” “Transit Vehicle Operator,” and “Other Transit Staff,” divided by VRM.
4a - Assaults on Transit Workers (new)	This includes all assaults on transit workers as defined by the NTD.
4b - Rate of Assaults on Transit Workers (new)	This includes all assaults on transit workers as defined by the NTD, divided by VRM.
5 - System Reliability	This includes Major Mechanical System failures as defined by the NTD.

Definitions are based on 49 CFR 673, the National Public Transportation Safety Plan, or the current National Transit Database (NTD) Reporting Guide.

Assault on a Transit Worker - A circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with,

disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

Fatality – Death confirmed within 30 days of the event (including suicides). Fatalities that occur because of illnesses or other natural causes (including individuals who are found deceased) are not reportable.

Injury -any harm to persons as a result of an event that requires immediate medical attention away from the scene.

Safety Event –an unexpected outcome resulting in injury or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.

System Reliability - mean distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures.

2.3 Safety Performance Target Coordination

Safety Performance Targets are made available to state of California including the Public Utilities Commission (CPUC), Caltrans, and the San Diego Association of Governments (SANDAG), MTS's Metropolitan Planning Organization (MPO), to aid in the planning process. Coordination with these agencies, in the selection of safety performance targets is accomplished to the maximum extent practicable. MTS officially transmits its targets in writing to the State and MPO following the annual review and certification. This transmission will take place in February of each year.

	State Entity Name	Date Transmitted
Targets Transmitted to the State[2]	California Public Utilities Commission (CPUC)	See Footnote 2
	California Department of Transportation (Caltrans)	See Footnote 2
Targets Transmitted to the MPO	**MPO Name**	**Date Transmitted**
	San Diego Association of Governments (SANDAG)	7/7/2020

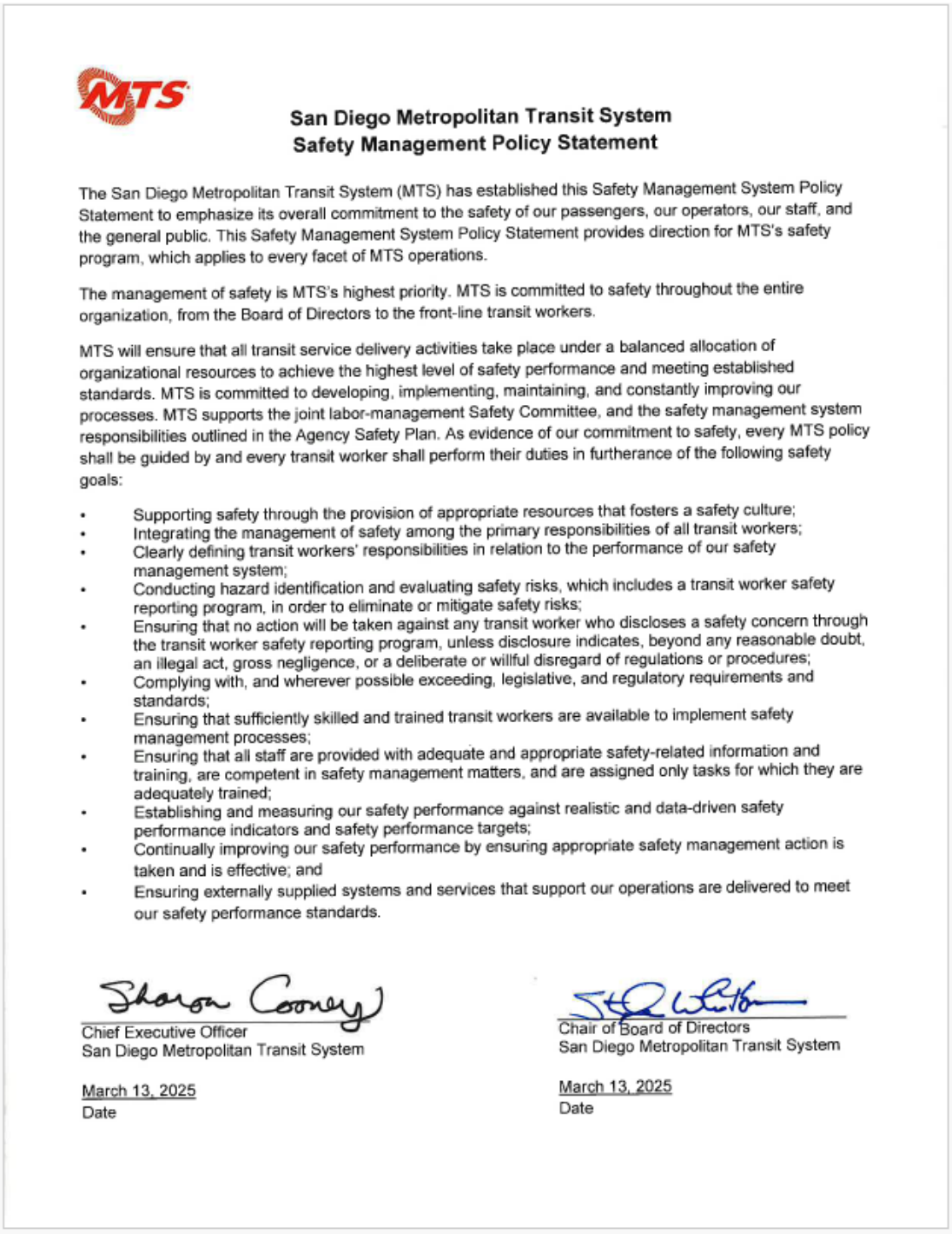
[2] Although MTS has offered to share Bus Safety Performance Targets with CPUC and Caltrans, both have stated it is not necessary to send Bus Safety Performance Targets for their review. As required per 49 CFR 673.15, MTS will coordinate and share Bus Safety Performance Targets with state entities to the maximum extent practicable.

3 Safety Management Policy

3.1 Safety Management Policy Statement

The Safety Management Policy Statement, signed by the Accountable Executive and approved by the MTS Board of Directors, establishes the agency's safety objectives, and documents the organizational authorities, accountabilities, and responsibilities (Figure 1).

Figure 1: Safety Management Policy Statement



San Diego Metropolitan Transit System
Safety Management Policy Statement

The San Diego Metropolitan Transit System (MTS) has established this Safety Management System Policy Statement to emphasize its overall commitment to the safety of our passengers, our operators, our staff, and the general public. This Safety Management System Policy Statement provides direction for MTS's safety program, which applies to every facet of MTS operations.

The management of safety is MTS's highest priority. MTS is committed to safety throughout the entire organization, from the Board of Directors to the front-line transit workers.

MTS will ensure that all transit service delivery activities take place under a balanced allocation of organizational resources to achieve the highest level of safety performance and meeting established standards. MTS is committed to developing, implementing, maintaining, and constantly improving our processes. MTS supports the joint labor-management Safety Committee, and the safety management system responsibilities outlined in the Agency Safety Plan. As evidence of our commitment to safety, every MTS policy shall be guided by and every transit worker shall perform their duties in furtherance of the following safety goals:

- Supporting safety through the provision of appropriate resources that fosters a safety culture;
- Integrating the management of safety among the primary responsibilities of all transit workers;
- Clearly defining transit workers' responsibilities in relation to the performance of our safety management system;
- Conducting hazard identification and evaluating safety risks, which includes a transit worker safety reporting program, in order to eliminate or mitigate safety risks;
- Ensuring that no action will be taken against any transit worker who discloses a safety concern through the transit worker safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;
- Complying with, and wherever possible exceeding, legislative, and regulatory requirements and standards;
- Ensuring that sufficiently skilled and trained transit workers are available to implement safety management processes;
- Ensuring that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are assigned only tasks for which they are adequately trained;
- Establishing and measuring our safety performance against realistic and data-driven safety performance indicators and safety performance targets;
- Continually improving our safety performance by ensuring appropriate safety management action is taken and is effective; and
- Ensuring externally supplied systems and services that support our operations are delivered to meet our safety performance standards.

Sharon Cooney
Chief Executive Officer
San Diego Metropolitan Transit System

March 13, 2025
Date

Chair of Board of Directors
San Diego Metropolitan Transit System

March 13, 2025
Date

3.2 Goals

MTS Transit Services is committed to providing the safest transportation possible for our employees, customers, the citizens of San Diego, and the communities we serve. We will:

- Provide and maintain a safe and healthy working environment
- Provide a safe and courteous transit system
- Follow best practices that will safeguard employees, customers, and persons interacting with transit property and equipment

Accidents are the result of unsafe acts committed by people and the existence of hazards or unsafe conditions, both of which are controllable and must be prevented to the maximum extent practicable in order to achieve MTS' commitment.

Our Safety Policy and our commitment to safety are at all times guided by the following principles:

- Safety is the responsibility of each and every employee
- Management has the responsibility to train all employees to work safely and to assure all employees work in a safe manner
- Preventing accidents, injuries, and incidents is good business
- Operating risks, hazards, and exposures can be safeguarded with active and effective safety practices
- Injuries and occupational illnesses can be prevented

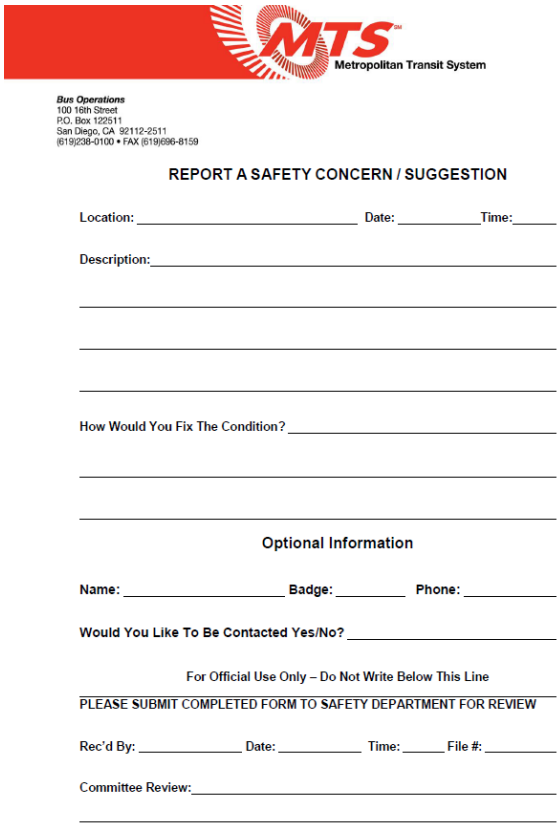
3.3 Employee Reporting Program

Employees and contractors (transit workers) are empowered to report safety concerns, including assaults on transit workers, hazards, unsafe conditions, near misses, and unsafe acts to management. No action will be taken against an employee/contractor through the reporting program as long as the report or act was not illegal, negligent, willful, or a violation of company policy/procedure. Employees have multiple means of communicating their concerns which include:

- Verbally to their direct supervisor or other member of management;
- By use of phone/radio;
- Through their union representative;
- Completing an anonymous online form via the intranet (Figure 2); and
- Through the Employee Safety Committee.

Hazards that cannot be adequately mitigated at the time of reporting are reported to the CSO and entered into the risk registry database for further assessment and mitigation (see Safety Risk Management).

Figure 2: Sample Online Reporting Form



Metropolitan Transit System

Bus Operations
100 16th Street
P.O. Box 122511
San Diego, CA 92112-2511
(619)238-0100 • FAX (619)696-8159

REPORT A SAFETY CONCERN / SUGGESTION

Location: _____ Date: _____Time:_____

Description:_____

_____

_____

_____

How Would You Fix The Condition? _____

_____

_____

Optional Information

Name: _____ Badge: _____ Phone: _____

Would You Like To Be Contacted Yes/No? _____

For Official Use Only – Do Not Write Below This Line

PLEASE SUBMIT COMPLETED FORM TO SAFETY DEPARTMENT FOR REVIEW

Rec'd By: _____ Date: _____ Time: _____ File #: _____

Committee Review:_____

_____

3.4 Safety Management Policy Communication

The Safety Management Policy Statement is communicated to all employees and contractors throughout the organization including: employees, managers, executives and the Board of Directors. This policy is communicated through:

- Employee Handbooks;
- Bulletin Boards;
- Newsletters; and
- Company Intranet.

3.5 Authorities, Accountabilities, and Responsibilities

3.5.1 Board of Directors

The Board of Directors (Board) is responsible for setting policy for MTS, including Transit Services. The Board is required to approve the ASP initial document and all updates. At its regular meetings, the Board receives periodic safety briefings from Bus Operations. The Board has delegated agency management to the CEO, subject to various adopted Board policies and legal requirements**.**

3.5.2 Accountable Executive

The Board of Directors has designated the CEO as the Accountable Executive for the Agency. The Accountable Executive has ultimate responsibility for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout the Agency. These responsibilities include:

- Establishing, implementing, and promoting the Safety Policy Statement;
- Authority over financial and human resources;
- Authority over all activities and operations;
- Authority over final risk assessment ranking;
- Authority over final mitigation(s) of hazards/unsafe conditions;
- Briefing the Board of Directors; and
- Responsibility for carrying out the Transit Asset Management (TAM) Plan.

The CEO has delegated the authority and the day-to-day responsibilities of the agency safety plan for Transit Services to the Chief Operating Officer (COO) of Transit Services.

3.5.3 Chief Operating Officer (COO)

The COO reports directly to the CEO and is responsible for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout Transit Services. These responsibilities include:

- Implementing, and promoting the Safety Policy Statement;
- Authority over financial and human resources within Transit Services;
- Authority over all activities and operations within Transit Services;
- Authority over the risk assessment ranking within Transit Services;
- Authority over final mitigation(s) of hazards/unsafe conditions within Transit Service; and

- Briefing the Board of Directors on SMS related activities within Transit Services, as requested by the CEO.

The COO will support and encourage an open dialogue between the Chief Safety Officer and the CEO.

3.5.4 Chief Safety Officer

The Chief Safety Officer (CSO) is the Manager of Safety for Transit Services. The CSO has a dual reporting role with the COO and the CEO. As necessary to implement the Bus Agency Safety Plan and discuss relevant issues, the CSO has a duty and a right to report directly to and consult with the CEO. The CSO has independent and direct access to the CEO as needed regarding all safety related issues. The CSO has regularly scheduled safety briefings with the CEO and COO. The CSO also reports to the COO on a day-to-day basis. The CSO is responsible for:

- Developing and maintaining SMS programs including the Bus Agency Safety Plan;
- Managing the Employee Reporting Program;
- Performing analysis of incidents, trends, and causes and making recommendations to reduce or eliminate the potential for recurrence;
- Assisting other departments with the development of training programs and procedures;
- Managing the review and analysis of all accidents, incidents, and safety events to determine preventability and any other causal or contributing factors;
- Providing monitoring and follow-up with employees after preventable accidents;
- Serving as the Chair of the Employee Safety Committee;
- Coordinating with external emergency response agencies, including police, fire, and emergency management agencies, regarding emergency response training, familiarization and review of emergency occurrences and Transit Services emergency preparedness plans; and
- Managing the Department of Motor Vehicles (DMV) Pull Notice Program and assuring all licenses, permits and certifications are in compliance.

3.5.5 Other Agency Leadership, Executive Management and Key Staff

3.5.5.1 Director of Fleet and Facility Maintenance

The Director of Fleet and Facility Maintenance directly reports to the COO and is responsible for:

- Directing, organizing, developing, and planning all directly operated bus and facility maintenance functions;
- Providing oversight, contract compliance and support for all of MTS's contracted service fleet and facility maintenance operations;
- Directing, coordinating, and supervising the development, implementation and administration of capital plans and contracts for fleet replacement, as well as service contracts providing maintenance for all MTS bus facilities and fleets;
- Overseeing the administration of applicable Collective Bargaining Agreement (CBA);
- Overseeing maintenance employee training, including the apprenticeship program; and
- Providing expertise and advice regarding staffing decisions in Fleet and Facilities, including recommendations for hiring, promotion and termination; evaluation and the implementation of discipline and other remedial measures.

3.5.5.2 Director of Transportation

The Director of Transportation directly reports to the COO and is responsible for:

- Organizing, developing, planning, and directing all of San Diego Transit's transportation functions;
- Overseeing the development and management of all transportation employee training programs, including new employee and drivers training, refresher courses, safety-related training, and all required safety/certifications/licensing; providing expertise for the development and coordination of new training programs.
- Overseeing the management of both Radio/Communications and Service Operations Supervisor teams, including developing standard operating procedures, setting expectations for professional interactions with customers and other employees. Guiding opportunities to improve supervisor skillsets through training, mentoring and professional development;

- Overseeing the administration of applicable CBA; and
- Providing expertise and advice regarding staffing decisions in Transportation Department, including recommendations for hiring, promotion and termination and the implementation of discipline and other remedial measures.

3.5.5.3 Director of Contract Operations and Passenger Facilities

The Director of Contract Operations and Passenger Facilities directly reports to the COO and is responsible for:

- Providing day-to-day oversight of contractor compliance with the agency safety plan;
- Providing contract oversight of the Agency's multi-year transit operations contracts;
- Monitoring ongoing facility maintenance activities dictated by Agency service contracts;
- Planning, directing, coordinating, and reviewing Contract Services' staff;
- Assisting with transportation activities and coordinating schedules, projects and programs as needed to ensure Contract Service quality and continuity with Agency goals and objectives;
- Overseeing the coordination of bus stop maintenance and other transit amenities, including administration of various vendor contracts;
- Working with appropriate staff to develop fleet capital replacement program; and
- Supporting Finance Department staff on discretionary and programmed grants applications.

3.5.5.4 Manager of Paratransit and Mini Bus

The Manager of Paratransit and Mini Bus directly reports to the Legal department and is responsible for:

- Providing day-to-day oversight of contractor compliance with the agency safety plan;
- Organizing, developing, planning and directing all of MTS' Paratransit and Mini Bus functions and ensuring alignment of these functions with the goals and critical business outcomes of MTS;
- Ensuring the MTS ADA Paratransit Program is in full compliance with ADA regulations with respect to operations, client certification, call center operations and revenue service;

- Managing the fixed route “Mini Bus” program and overseeing the operations and management contract between MTS and the service provider(s); and
- Preparing operating and capital budgets, monitoring service performance, conducting community outreach, representing MTS on advocacy and transportation committees, and evaluating existing and proposed transit services.

3.5.5.5 Environmental Health & Safety Manager

The Environmental Health & Safety Manager reports directly to the Legal department and is responsible for:

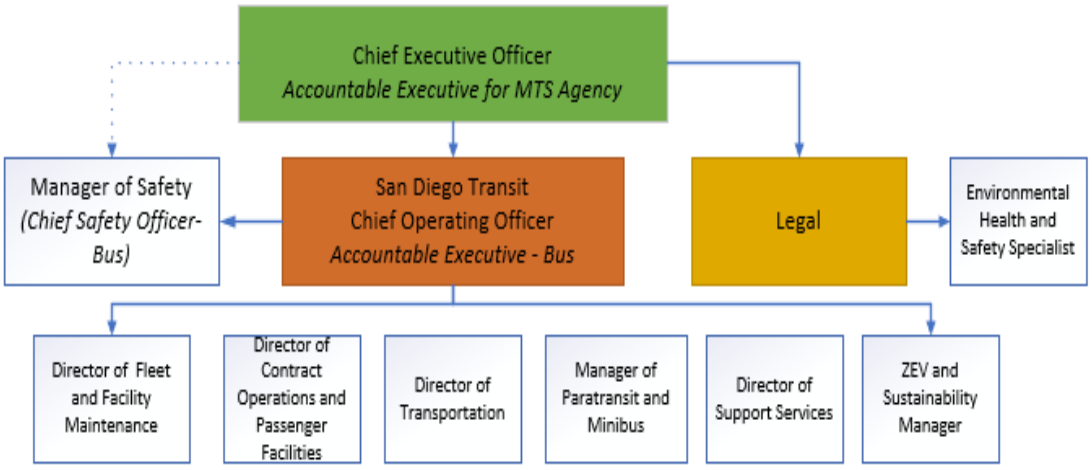
- Developing, implementing, and overseeing Environmental Health and Safety policies and procedures;
- Developing, coordinating, and participating in industrial hygiene and environmental safety programs;
- Developing comprehensive environmental and occupational safety and health inspection checklists and protocols, conducting inspections of facilities, and escorting regulatory inspectors during inspections;
- Interfacing with government agencies to maintain regulatory compliance with Federal, State, regional, and local environmental laws and regulations by preparing permit applications and renewal documents and negotiating permit conditions and developing corrective action plans; and
- Reviewing and approving chemical products used in relation to environmental and industrial hygiene impacts.

3.6 Contract-Operations Oversight

Various MTS employees are charged with oversight of contractors as it relates to safety and other matters. Such responsibilities are noted where applicable. In addition, each of the contractor safety plans (See Appendices) also describe oversight functions.

4 Organization Chart

Figure 3: Organization Chart



5 Meetings

5.1 CEO Safety Briefings

The CEO, COO, and CSO meet on a regular basis to review and discuss safety performance. These topics include but are not limited to:

- Accidents & Injuries
- Hazard mitigation strategies
- Training activities
- Policy & Procedures
- Committee meetings
- Contract management
- Project updates

5.2 Transit Services Executive Staff Meetings

The CSO and other agency leadership within Transit Services meet together on a weekly basis with the COO to review and discuss updates from each department. These topics include but are not limited to:

- Accidents & Injuries
- Hazard mitigation strategies
- Training activities
- Policy & Procedures
- Committee meetings

- Contract management
- Project updates

5.3 Transit Services Safety Committee

The purpose of the Safety Committee is to: create, improve, promote, and maintain a heightened safety culture within the organization; inform, educate and influence employees through awareness campaigns and training activities designed to prevent and reduce accidents and injuries; and to provide a forum for employees to actively participate in safety programs that address and resolve safety issues in a timely manner.

The Safety Committee is also responsible for, at a minimum: (1) identifying and recommending risk-based mitigations or strategies necessary to reduce the likelihood and severity of consequences identified through the agency's safety risk assessment; (2) identifying mitigations or strategies that may be ineffective, inappropriate, or were not implemented as intended; (3) identifying safety deficiencies for purposes of continuous improvement; and (4) setting Safety Performance Targets (SPTs) for safety risk reduction programs.

The Bipartisan Infrastructure Law requires the Safety Committee to approve an agency’s Agency Safety Plan (ASP) and any updates to the ASP. This approval must occur before the agency’s Board of Directors approves the ASP or update. All members of the Safety Committee may suggest changes to the ASP. Members must provide their suggested changes in writing to the Chief Safety Officer, so they can be distributed to all members of the Safety Committee prior to the next regularly scheduled meeting. All members in attendance of the monthly meeting will be given an equal opportunity to discuss proposed revisions prior to approval. In the event that any member(s) object to proposed changes of the plan, the objection will be included in this plan and reviewed with the Accountable Executive and Board of Directors prior to final approval.

The Safety Committee is comprised of representatives from both bargaining units (ATU, IBEW) as well as management representatives from the Maintenance, Safety, Security, and Transportation Departments. The Safety Committee is a joint labor-management committee that is comprised of an equal number of employee representatives and management representatives, compliant with 49 CFR 679.19, and the Bipartisan Infrastructure Law, § 5329(d)(5).

The Safety Committee is Chaired by the Manager of Safety (CSO). Frontline employee representatives are selected by the labor organization(s) that represents the plurality of the agency’s frontline workforce employed by the agency or a contractor, to the extent labor organizations represent the frontline workforce. Members receive training based on their job title and responsibilities. Training requirements for employees are covered in the Competencies and Training section of this plan.

Members will be compensated for participation in the safety committee in accordance with all applicable state and federal laws and existing collective bargaining agreements. Members are not expected to attend meetings that are scheduled during vacations or on regular days off. If a member chooses to attend a meeting on their day off/vacation, attendance is voluntary. Members can send an alternate on their behalf with their union leadership approval. Members must work their regularly scheduled shift before/after committee meetings. Attendance to the meetings cannot cause employees to exceed maximum working or driving regulations. Management will provide reasonable time for all members to be relieved of their regular duties while attending committee meetings. Frontline IBEW representatives must work either the day shift or the first swing shift to attend committee meetings. Employees working the first swing shift have the option of their choice for being paid overtime for attendance or being permitted to end their shift after 8 hours of working time.

The Safety Committee primarily meets monthly on the third Thursday of each month at 2:00 pm at the IAD Executive Conference Room. Members can attend the meeting in person, or via conference call (virtual). Agendas are developed by the chair. The meeting minutes will be recorded and maintained by the committee recorder (Safety Specialist). Agendas, and minutes will be emailed to committee members and posted on the intranet. The Safety Committee will access technical experts, including other transit workers, to serve in an advisory capacity by mutual agreement.

The Safety Committee will reach decisions based on consensus. Decisions will be recorded by the Committee Recorder (Safety Specialist) and included in the minutes. The safety committee will try and resolve all disputes internally which may include the COO of Transit Services. The safety committee will not designate the Accountable Executive to resolve any disputes within the Safety Committee. As a last resort, the Safety Committee will utilize the grievance and arbitration process outlined in existing collective bargaining agreements to resolve any disputes.

The Safety Committee will primarily coordinate and communicate with the transit agency's Board of Directors and the Accountable Executive, through the Manager of Safety. Additionally, all members have the ability to individually communicate with the Accountable Executive and the Board of Directors at their discretion.

5.4 Risk Department Meetings

Agency leadership within Transit Services meets with the Risk Department on a quarterly basis. These topics include but are not limited to:

- Open & recently closed claims
- Workers comp claims
- Litigation updates

- Hazard mitigation strategies
- Training activities
- Policy & Procedures

5.5 Emergency Preparedness and Response

5.5.1 Employee Training

Employees receive varying levels of emergency response training during the initial onboarding process depending on job position. Employees also receive applicable refresher training throughout the year through training programs and topics outlined in the Safety Promotion and Safety Communication sections of this document. Topics covered for emergency training include:

- Accident/Injury reporting
- Inspection protocols
- Passenger evacuations
- Road calls/Breakdowns
- Fire suppression
- Spill prevention, control, and countermeasures (SPCC)
- Hazardous waste, operations, and emergency response (HAZWOPER)
- Conflict resolution and de-escalation techniques
- CPR/AED

5.5.2 Emergency Responder Training & Coordination

Transit Services participates in external agency emergency trainings and exercises whenever requested/invited by local municipal, county, state, or federal entities. These events include emergency events specific to the transit system as well as supporting other agencies with available resources (vehicles) to aid in external emergency response. Typical training events and exercises include:

- Vehicle familiarization
- Bus hijacking/SWAT
- Rescue/heavy lift extraction
- Homeland Security canine training
- Community based evacuations & temporary shelter
- Tabletop exercises

5.5.3 Vehicle Safety Equipment

Fixed route buses are equipped with the following safety features to reduce to the likelihood/severity of an emergency:

- Two way radio
- GPS tracking
- Security cameras
- Discreet panic button
- Fire extinguisher
- Engine fire detection & suppression system (excludes battery electric buses)
- Interlock device(s)
- Fuel leak detection alarm (CNG buses only)
- Emergency exit windows & roof hatches
- Low air pressure alarm

6 Safety Risk Management

Safety Risk Management is a decision making process that involves the identification, evaluation, and mitigation of hazards and unsafe conditions throughout the system. Hazards are to be eliminated or mitigated to lowest practical level with consideration given to financial and operational constraints. Transit Services utilizes a decentralized process where each department is responsible for managing the hazards that exist within their department.

6.1 Safety Hazard Identification

All employees are responsible for identifying and reporting hazards and unsafe conditions to their immediate supervisor/manager. The supervisor/manager is responsible for the initial evaluation and mitigation of a reported hazard. If the supervisor/manager is unable to eliminate the hazard or effectively mitigate the hazard to an acceptable level, the hazard must be reported to the CSO. The CSO is responsible for documenting the reported hazard.

Hazards are generally identified through:

- Employee Reporting Program;
- Employee Safety Committee;
- Routine inspections;
- Training activities;
- Direct observation by supervisors, managers, and/or safety personnel;
- Accident and incident investigations;
- Customer Service reports;
- Daily operations activity reports;
- Safety data analysis;

- Audits;
- Data and info provided by FTA or other oversight authority;
- Design/Planning process for capital projects;
- Procurement of goods and services; and
- New service implementation.

6.2 Safety Risk Assessment

The CSO is responsible for assessing safety risks. Analyzing hazards is subjective. Two reasonable people could assess the same hazard and determine a different probability or severity of an unfavorable outcome. Hazards are analyzed using the probability/severity matrix within this section (Table 6, Table 7, Table 8, and Table 9). The criteria listed in the severity and probability charts are intended to be guidelines only. Each hazard is unique. Therefore, in addition to the severity and probability charts, the CSO should also consider common sense, similar prior/existing hazards, historical data, and their professional experience when conducting the assessment. Hazards that are “unacceptable,” “undesirable,” or “acceptable with review by management” are entered into the Risk Register by the CSO. Hazards that are “acceptable without review” are not required to be entered into the Risk Register. The CSO is responsible for informing the Accountable Executive of the MTS Agency of any hazard that is “unacceptable” or “undesirable.”

Table 5: Severity

Severity		
Description	**Category**	**Criteria (worst likely credible outcome)**
Catastrophic	**1**	Could likely result in death, permanent total disability, severe property damage or irreversible environmental damage.
Critical	**2**	Could likely result in permanent partial disability, injuries or occupational illness that may result in hospitalization, or reversible significant property/environmental damage.
Marginal	**3**	Could likely result in injury or occupational illness resulting in one or more lost work days(s), reversible moderate property/environmental damage.
Negligible	**4**	Could likely result in injury or illness not resulting in a lost work day, minimal property/environmental impact.

Table 6: Likelihood

Likelihood		
Description	**Level**	**Specific Individual Item (Example of Frequency)**
Frequent	**A**	Likely to occur frequently or continuously. (Weekly, 100K miles)
Probable	**B**	Likely to occur several times. (Monthly, 1 million miles)
Occasional	**C**	Likely to occur sometime. (Yearly, 10 million miles)
Remote	**D**	Unlikely but reasonable or possible to occur. (Decade, 100 million miles)
Improbable	**E**	So unlikely, it can be assumed occurrence may not be experienced.
Eliminated	**F**	This level is used when potential hazards are identified and later eliminated.

Table 7: Hazard Assessment Matrix

Hazard Assessment Matrix				
	1 - Catastrophic	**2 - Critical**	**3 - Marginal**	**4 - Negligible**
A - Frequent	**1A**	**2A**	**3A**	**4A**
B - Probable	**1B**	**2B**	**3B**	**4B**
C - Occasional	**1C**	**2C**	**3C**	**4C**
D - Remote	**1D**	**2D**	**3D**	**4D**
E - Improbable	**1E**	**2E**	**3E**	**4E**
F - Eliminated	**N/A**	**N/A**	**N/A**	**N/A**

Table 8: Acceptability Levels

Acceptability Levels

High	**Unacceptable**
Serious	**Undesirable** with management decision
Medium	**Acceptable** with review by management
Low	**Acceptable** without review

6.3 Safety Risk Mitigation

After a risk assessment has been conducted, the CSO will identify parties responsible for mitigating the hazard. The responsible parties are generally department heads, those most knowledgeable about the hazard (subject matter experts), or those with the most adequate resources to mitigate the hazard.

The following are common methods and processes responsible parties typically use to mitigate hazards:

- Eliminate hazards by repair/replacement;
- Eliminate hazards through design/change of service;
- Incorporate engineered features or devices;
- Provide warning devices, signage and alarms;
- Establish written policy and procedures to address the hazard;
- Implement training activities;
- Use of personal protective equipment (PPE); and
- Communication of hazard with employees, passengers, and general public.

Responsible parties are required to update the CSO on mitigation progress in a timely manner. The CSO is then responsible for updating the Accountable Executive and the Risk Registry in Industry Safe. The Risk Registry is reviewed quarterly by the Accountable Executive, CSO, and responsible parties. The Accountable Executive has the ultimate authority when deciding mitigations and the final assessment of a hazard. Hazards that remain at an unacceptable/undesirable level will continue to be monitored and revisited during the annual budget and capital improvement process.

7 Safety Assurance

7.1 Safety Performance Monitoring and Measurement

MTS has established several activities to monitor operations and maintenance for compliance with procedures. These processes are also used to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended. Non-compliance with procedures is generally addressed through

counseling, training, and other management oversight activities. Insufficient procedures are addressed through safety risk management activities.

Supervisors are responsible for upholding established policies and procedures covered in documents such as CBAs, employee handbooks, training manuals, bulletins, memos, California Vehicle Code sections, etc. Supervisors typically utilize direct observations, job briefings, facility inspections, radio communications, and investigations to determine compliance. Employees who are not compliant with these procedures may receive in-person counseling, written observation letters, re-training, and/or progressive discipline depending on the severity of the event and the employee's work record.

7.1.1 Investigations

All employees are required to immediately report safety related events to their direct supervisor or the Bus Control Center/radio room and complete a written accident/incident report. The Supervisor on duty is responsible for ensuring the appropriate response to the scene (dependent on available resources) and determining if a drug and alcohol test is required.

A Service Operations Supervisor (SOS) should be sent to the scene to investigate whenever a person is injured/claiming injury or there is a collision involving a bus or other mass transit vehicle. The SOS will gather statements from persons involved/witnesses, collect insurance and other contact information, take photos of the scene, etc., and complete a written report.

Following the event, the Transportation Service Quality Specialist will collect video from the bus camera system and facility camera system if available. The video is generally stored in either the camera system server or a shared network drive and preserved for at least one year after the event and may be stored longer as dependent on available storage space. The CSO will collect and review all information and forward all written materials to the Risk Department and/or the Safety Review Committee (SRC).

The SRC is responsible for reviewing events involving: vehicle collisions, claims of injury, wheelchair ramp use, and certain braking events. The SRC is chaired by the CSO and also includes a member from the Training Department and a member from the Transportation Department. The SRC meets weekly and reviews all available information to determine preventability and any other causal or contributing factors. The CSO informs applicable management and other involved employees of the SRC's findings.

The CSO is responsible for entering safety related information in MTS's Enterprise Resource Program (SAP) for tracking purposes and data analysis. The CSO is responsible for entering hazards that require management review and/or a decision by management (High/Serious/Medium risk levels) in Industry Safe for tracking the mitigation of hazards. The CSO is also responsible for

reporting this data to the Accountable Executive on a monthly basis. The CSO is also responsible for reporting applicable required information to the National Transit Database (NTD) on a monthly basis.

7.1.2 Drug & Alcohol Program

MTS is a drug and alcohol-free workplace and has an established drug and alcohol policy that is compliant with 49 CFR parts 40 and 655. Every employee receives training upon initial hiring. Supervisor/mangers receive two hours of additional training every two years that includes a minimum of 60 minutes on the effects of drug use and 60 minutes of training on the effects alcohol use and the agency policy. Drug and alcohol testing is conducted under the following circumstances:

- Pre-Employment;
- Reasonable Suspicion;
- Post-Accident;
- Random;
- Assuming Safety Sensitive Duties; and
- Return to Duty / Follow-Up

7.1.3 Driving Hours and On-Duty Time

Bus operators' schedules are assigned on a daily basis by an Operations Supervisor. The Operations Supervisor checks hours of service before scheduling upcoming work days. The following records for all bus operators are generated, tracked, and stored in the system:

- The scheduled assignment of all drivers including regular work days, day off work, overtime, vacations, holidays, absences, outside employment hours;
- The time the driver reports for duty each day;
- The time the driver is released from duty each day;
- The total number of hours the driver is on duty each day;
- The total scheduled driving time each day;
- The delay time at the end of each work piece; and
- The total time for the preceding seven days for drivers used for the first time or intermittently.

Title 13 of the California Code of Regulations subsection 1212 and 1212.5 establish the following limits on commercial bus operating hours:

- Drivers must have at least 8 hours off between work shifts;

- Maximum 10 hours driving time per day;
- Maximum 15 hours of on duty time; and
- Maximum 80 hours of on duty time for any consecutive 8 days.

In addition to state law, the applicable CBA establishes the following limits on scheduling and work hours:

- Drivers have at least 10 hours off between bid-in and scheduled work shifts; and
- Scheduled on-duty/spread work day limited to 12.5 hours.

7.1.4 DMV Pull Notice

MTS enrolls all employees in the California Employer Pull Notice (EPN) program. The program is required for all commercial drivers as a means for employers to electronically verify and monitor driving records. Employees are enrolled upon hire and removed upon termination. Records indicate license type, expiration date, special certificates, endorsements, restrictions. Notices are also sent annually and when there is a change to license status including a ticket, accident, or suspension. MTS uses a web based software solution company to manage the EPN program.

The CSO is responsible for monitoring the records of all commercial drivers and union employees. The CSO is responsible for notifying each department of status changes to the employee's eligibility to operate a bus or other vehicle. Each department is responsible for notifying the employee in their department of status changes, collecting documentation, and preventing them from operating a vehicle if they are not eligible to drive.

The Human Resources Department is responsible for checking a prospective employee's three (3) year driving record during the application and interview process. The Human Resources Department is responsible for monitoring the records of all management employees who do not have a commercial license.

The California Highway Patrol (CHP) performs an audit of the EPN program during the annual terminal inspection.

7.1.5 Customer Complaint Investigation

Customer complaints are managed overall by Support Services Department. Customers can submit a complaint by mail, in-person at MTS's administrative through the call center, through the MTS website or through MTS's mobile application.
All customer's comments or complaints are entered into the Customer Review Module in SAP. The comments then investigated by the responsible department. Investigation measures may include interviewing staff and/or collecting video if

appropriate. Final resolution is handled by department managers. The findings of the investigation are then entered into the Customer Review Module.

7.1.6 Ride Checker Program

MTS has two (2) anonymous part-time employees that conduct both directed and random rides that monitor a driver's performance while in revenue service. The ride checker completes a four-page "Ride Monitor Observation Listing" report for each ride. The report includes both yes/no questions and comment fields for various categories (Table 10).

Table 9: Ride Monitor Observation Listing

Ride Monitor Observation Listing		
Employee Information	Safety Observations	Bus Stop
Operator Appearance	Speed & Clearance	Turning Intersections
Departure / Arrival	ADA Compliance	Customer Service
Fare Collection	Railroad Crossing	Bus Appearance

The report is verified by the Support Services Analyst and emailed to a management distribution group. The Division Managers are responsible for final resolution of the reports.

7.1.7 Vehicle Pre-Trip Inspections

Pre-trip inspections are conducted in accordance with State and Federal law. Pre-trip inspections are completed by bus operators in the bus yard before the bus goes into revenue service. The pre-trip inspections also occur when bus operators make a relief on the road (excluding air brake test).

7.1.8 Vehicle Preventative Maintenance

Preventative maintenance and inspection is carried out at a minimum in accordance with the Original Equipment Manufacturer (OEM) recommendations. This process occurs based on miles and varies in the complexity based on the mileage interval. Inspections include:

- Brake inspection;
- Lube and oil filter;
- General inspection;
- Wheelchair ramp;
- Air conditioner;
- Electrical;

- Cooling;
- Compressed Natural Gas (CNG) and fire suppression;
- Farebox;
- Transmission; and
- Differential and diaphragms.

All inspections are documented and kept for the life of the vehicle. Specific details on the preventative maintenance program are explained further in the Maintenance Manual that is maintained by the Maintenance Department. The California Highway Patrol (CHP) conducts an independent audit of the preventative maintenance program annually.

7.1.9 Internal Safety Reporting Programs

The CSO routinely reviews safety data from various sources including: employee safety reports, safety meetings, the employee reporting program, customer service complaints, OSHA logs, and other safety communication channels that track safety performance information. The CSO will review and assess the data, conduct further investigations, and use established safety risk management process as needed to ensure safety risk mitigations are effective.

7.2 Management of Change

Changes that may introduce new hazards or impact the agency's safety performance are assessed through various processes. These changes include but are not limited to:

- Procurement of new goods/equipment;
- Changes to route design and special event detours;
- Operations/Maintenance procedure changes;
- Introduction of new technology;
- New regulatory requirements;
- Changes to operating environment including city/regional planning;
- Design and construction of capital projects; and
- Organizational changes.

If management determines that a change may impact safety performance, the proposed change should be evaluated using the Safety Risk Management Process, which includes hazard identification, risk assessment, and risk mitigation. Any change that may introduce new hazards to the system should include the safety department. Please refer to the Safety Risk Management section of this document or contact a member of the safety department for more information regarding this process. If the safety department is not consulted and engaged during the decision making process of the change, the project manager or individual who is

approving/implementing the change is responsible for ensuring adequate safety risk management is conducted prior to making any changes.

7.3 Continuous Improvement

MTS establishes Safety Performance Targets, Key Performance Indicators and PIP goals annually. These goals are tracked and reported on a monthly and annual basis. The CSO meets with the CEO, COO, executive management, and other key staff regularly to review and evaluate the agency's performance. Any identified deficiencies are addressed with a plan, under the direction of the Accountable Executive or their designee.

8 Safety Promotion

8.1 Safety Communication

Management promotes and communicates safety performance throughout the entire organization. This communication includes information on hazards and safety risk relevant to employees' roles and responsibilities. Employees are also informed of safety actions that are taken in response to reports submitted through the safety reporting program. The methods of communication include but are not limited to:

- Training Activities;
- Safety Committee;
- Meetings;
- Handbooks;
- Policies;
- Memos;
- Bulletins;
- Newsletters;
- Company Intranet;
- Job Briefings; and
- Department Information Monitors.

8.2 Competencies and Training

8.2.1 Chief Safety Officer Training Program

The CSO participates in the Voluntary Bus Safety Certification Program as outlined in 49 CFR Part 672. This training includes the following courses:

- SMS Awareness;
- SMS Safety Assurance;
- SMS Principles For Transit;
- Transit Bus System Safety;

- Fundamentals of Bus Collision Investigation; and
- Effectively Managing Transit Emergencies.

The CSO training also includes:

- Drug and Alcohol;
- Harassment Prevention; and
- Management Development

8.2.2 Servicer Training Program

All servicers complete a comprehensive training program. This program includes passing a written and behind the wheel test for a commercial driver license. Other major topics covered in the training program include: Code of Safe Practices, CNG fueling procedures, electric bus charging, bloodborne pathogen control program, Spill Prevention & Control Program (SPCC), and Maintenance Department policies and procedures.

Servicer refresher training includes but is not limited to:

- Toolbox training sessions;
- SPCC refresher training;
- Behind the wheel evaluations; and
- Preventable Accident remediation
- De-escalation training

8.2.3 Mechanic Apprenticeship Program

All mechanics complete a three (3) to four (4) year (depending on specialty) state certified apprenticeship program. The training starts with 40 days of in-house classroom instruction followed by on-the-job training with a mentor throughout the program. Apprentices must also complete nine (9) required college courses through Miramar Community College. In addition to the apprentice program, mechanics also receive the training program outlined in the servicer training program. Mechanics also receive Hazardous Waste Operations and Emergency Response (HAZWOPER) training as well as forklift certification.

Mechanic refresher training includes but is not limited to:

- Toolbox training sessions;
- SPCC annual refresher training;
- HAZWOPER annual refresher training;
- Forklift recertification every 3 years;
- Behind the wheel evaluations;

- Preventable accident remediation;
- De-escalation training;

8.2.4 Foreman and Maintenance Managers

Foreman and Maintenance Managers training includes, but is not limited to, the following:

- Drug and Alcohol;
- Harassment Prevention;
- Management Development;
- Toolbox training sessions;
- SPCC;
- HAZWOPER;
- Forklift recertification;
- Behind the wheel evaluations;
- De-escalation training;
- Preventable accident remediation; and
- Cardiopulmonary Resuscitation (CPR).

8.2.5 Bus Operator Training Program

All bus operators complete a nine (9) week training program prior to operating a bus in revenue service on their own. The training program is comprised of both classroom and behind the wheel driving. Operators are required to receive and maintain a class B commercial driving license, with a passenger and air brake endorsement. Operators are also required to have a valid medical certificate and Verification of Transit Training (VTT) certificate. Training topics includes, but are not limited to, the following:

- Bus operation and defensive driving;
- Destination signs;
- Radio communication;
- Customer service;
- ADA;
- Emergency procedures; and
- Route training.

Bus Operator refresher training includes, but is not limited to, the following:

- VTT annual training;

- Accident remediation;
- Defensive driving;
- Conflict resolution;
- Policy and procedures; and
- Behind the wheel evaluations.

8.2.6 Transportation Supervisors and Managers

Supervisors and Transportation Managers training includes, but is not limited to, the following:

- Drug and Alcohol;
- Harassment Prevention;
- Management Development;
- VTT;
- De-escalation training;
- CPR; and
- Preventable accident remediation.

APPENDIX A

Bus Safety Plan
(Public Transportation Agency Plan pursuant to 49 CFR 673)

transdev
the mobility company

MTS Contract-Operator at South Bay Maintenance Facility (SBMF) and East County Maintenance Facility (ECMF)



APPENDIX A

TRANSDEV BUS SAFETY PLAN

Contract Operations at

East County Maintenance Facility

and

South Bay Maintenance Facility

1 Bus Agency Safety Plan Overview

1.1 Agency Information

This Bus Agency Safety Plan discusses how safety is managed for Transdev, in operating the fixed route contract for the San Diego Metropolitan Transit System (MTS). The Agency Safety Plan addresses all applicable requirements and standards as set forth in FTA's Public Transportation Safety Program and the National Public Transportation Safety Plan.

Transdev operates Fixed-Route Urban, Local, Express, Rural and Bus Rapid Transit (BRT) bus services in the San Diego Metropolitan Transit System (MTS) service area of San Diego. Services are provided under a contract agreement, to operate Fixed-Route service from the South Bay Division and East County Division, which operate a combined fleet of approximately 332 buses on approximately 56 Routes.

Table 1: Agency Information

Agency Information	
Transit Agency Name	MTS
Transit Agency Address	1255 Imperial Ave Suite 1000, San Diego, CA 92101
Name and Title of Accountable Executive	Sharon Cooney, Chief Executive Officer (CEO)
Name of Chief Safety Officer (CSO) or Safety Management System (SMS) Executive	Jared Garcia, Manager of Safety
Modes of Service Covered by This Plan	Contracted Fixed Route Bus
List Of All Funding Types:	5307, 5337, 5339
Mode(s) of Service Provided by the Transit Agency (Directly Operated or Contracted Service)	Contracted Fixed Route Bus
Does the agency provide transit services on behalf of another transit agency or entity?	No
Description of Arrangement(s)	N/A

1.2 Bus Agency Safety Plan Approvals

The Bus Agency Safety Plan has been approved by the Accountable Executive and the MTS Board of Directors (Table 2).

Table 2: Bus Agency Safety Plan Approvals

Bus Agency Safety Plan Approvals		
Name of Entity That Drafted This Plan	San Diego Metropolitan Transit System	
Safety Committee Approval	Signature of Chief Safety Officer	Date of Approval
	Jared Garcia	3/19/2026
Accountable Executive Signature	Signature of Accountable Executive	Date of Signature
		5/21/2026
Approval by the MTS Board of Directors	Signature of Chairperson of the MTS Board of Directors	Date of Approval
		5/21/2026
Certification of Compliance	Name of Individual/Entity That Certified This Plan	Date of Certification
		5/21/2026

1.3 Annual Review, Update, and Safety Performance Assessment

1.3.1 Annual Review of the Bus Agency Safety Plan

This plan will be reviewed and updated annually during the month of January by the Chief Safety Officer. Proposed changes are reviewed with the Accountable Executive, Executive Management and Key Staff. The Accountable Executive will review and approve any changes, sign the updated plan, and then forward the plan to the Board of Directors for final review and approval. Updates to this plan may be made when there are:

- Changes to: safety performance targets, safety management policy, safety risk management, safety assurance, and safety promotion;
- Changes to: The Accountable Executive, COO, or CSO;
- Significant changes to service delivery;
- Significant changes to the organizational structure;
- New process/procedures are introduced that impact safety;
- Changes to available resources or priorities that support SMS; and
- Changes required by the Federal Transit Administration (FTA), California Public Utilities Commission (CPUC), California Department of Transportation (Caltrans), San Diego Association of Governments (SANDAG), etc. or other similar oversight agency.

1.3.2 Annual Safety Performance Assessment

MTS conducts an annual safety performance assessment in conjunction with the annual review. This assessment includes a review of the prior year's performance involving the Safety Performance Targets, Key Performance Indicators and applicable Performance Incentive Program (PIP) goals. The assessment may also include reviewing identified safety deficiencies, or other areas involving safety performance.

Updates made to the Bus Agency Safety Plan will be documented (Table 3).

Table 3: Version Number and Update History of Transit Safety Plan

Version Number and Update History of Bus Agency Safety Plan			
Version Number	Section/Pages Affected	Reason for Change	Date Issued
1.0	All pages are original version	First Official version of Safety Plan	7/30/2020
1.0	All	Annual Review	January 2021
1.0	All	Annual Review	January 2022
2.0	Sections 3, 4, 7	Bipartisan Infrastructure Law	February 2023
2.0	All	Annual Review	January 2024
3.0	Sections3, 4	FTA Requirements	January 2025
4.0	Risk Reduction Program	FTA Requirements	March 2026

1.4 Documentation and Recordkeeping

This Bus Agency Safety Plan and documents related to this plan will be maintained for three (3) years after date of creation and be made available upon request by the FTA or other applicable agency having jurisdiction.

2 Safety Performance Targets

2.1 Safety Performance Targets

As required by 49 CFR 673.11(a) (3), this Bus Agency Safety Plan must include performance targets associated with revenue service that are based on the safety performance measures established under the National Public Transportation Safety Plan.

MTS may adjust performance targets over time, as data is collected and as SMS implementation matures. MTS performance targets are calculated using a 3-year rolling average of the data submitted to the National Transit Database (NTD) (Table 4). The safety performance targets are evaluated for each calendar year (January 1 – December 31).

2.2 Safety Performance Target Definitions

Definitions are based on 49 CFR 673, the National Public Transportation Safety Plan, or the current National Transit Database (NTD) Reporting Guide.

Assault on a Transit Worker - A circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with, disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

Fatality – Death confirmed within 30 days of the event (including suicides). Fatalities that occur because of illnesses or other natural causes (including individuals who are found deceased) are not reportable.

Injury -any harm to persons as a result of an event that requires immediate medical attention away from the scene.

Safety Event –an unexpected outcome resulting in injury or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.

System Reliability - mean distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures.

Safety Performance Measures	
Performance Measure	**Description**
1a - Major Events	This includes all safety and security major events as defined by the NTD.
1b - Major Event Rate	This includes all safety and security major events as defined by the NTD, divided by VRM.
1.1 - Collision Rate (new)	This includes all collisions reported to the NTD, divided by VRM.
1.11 - Pedestrian Collision Rate (new)	This includes all collisions “with a person,” as defined by the NTD, divided by VRM.
1.1.2 - Vehicular Collision Rate (new)	This includes all collisions “with a motor vehicle,” as defined by the NTD, divided by VRM.
2a - Fatalities	This includes all fatalities as defined by the NTD.
2b - Fatality Rate	This includes all fatalities as defined by the NTD, divided by VRM.
2.1 Transit Worker Fatality Rate (new)	This includes all transit worker fatalities as defined by the NTD, including the categories “Transit Employee/Contractor,” “Transit Vehicle Operator,” and “Other Transit Staff,” divided by VRM.
3a - Injuries	This includes all injuries as defined by the NTD.
3b - Injury Rate	This includes all injuries as defined by the NTD, divided by VRM.
3.1 Transit Worker Injury Rate (new)	This includes all transit worker injuries as defined by the NTD, including the categories “Transit Employee/Contractor,” “Transit Vehicle Operator,” and “Other Transit Staff,” divided by VRM.
4a - Assaults on Transit Workers (new)	This includes all assaults on transit workers as defined by the NTD.
4b - Rate of Assaults on Transit Workers (new)	This includes all assaults on transit workers as defined by the NTD, divided by VRM.
5 - System Reliability	This includes Major Mechanical System failures as defined by the NTD.

2.3 Safety Performance Target Coordination

Safety Performance Targets are made available to state of California including the Public Utilities Commission (CPUC), Caltrans, and the San Diego Association of Governments (SANDAG), MTS's Metropolitan Planning Organization (MPO), to aid in the planning process. Coordination with these agencies, in the selection of safety performance targets is accomplished to the maximum extent practicable. MTS officially transmits its targets in writing to the State and MPO following the annual review and certification. This transmission will take place in February of each year.

	State Entity Name	Date Transmitted
Targets Transmitted to the State[1]	California Public Utilities Commission (CPUC)	See Footnote 1
	California Department of Transportation (Caltrans)	See Footnote 1
Targets Transmitted to the MPO	**MPO Name**	**Date Transmitted**
	San Diego Association of Governments (SANDAG)	7/7/2020

3 Safety Management Policy

3.1 Safety Management Policy Statement

The Safety Management Policy Statement, signed by the Accountable Executive and approved by the MTS Board of Directors, establishes the agency's safety objectives, and documents the organizational authorities, accountabilities and responsibilities
(Figure 1).

[1] Although MTS has offered to share Bus Safety Performance Targets with CPUC and Caltrans, both have stated it is not necessary to send Bus Safety Performance Targets for their review. As required per 49 CFR 673.15, MTS will coordinate and share Bus Safety Performance Targets with state entities to the maximum extent practicable

Figure 1: Safety Management Policy Statement

San Diego Metropolitan Transit System
Safety Management Policy Statement

The San Diego Metropolitan Transit System (MTS) has established this Safety Management System Policy Statement to emphasize its overall commitment to the safety of our passengers, our operators, our staff, and the general public. This Safety Management System Policy Statement provides direction for MTS's safety program, which applies to every facet of MTS operations.

The management of safety is MTS's highest priority. MTS is committed to safety throughout the entire organization, from the Board of Directors to the front-line transit workers.

MTS will ensure that all transit service delivery activities take place under a balanced allocation of organizational resources to achieve the highest level of safety performance and meeting established standards. MTS is committed to developing, implementing, maintaining, and constantly improving our processes. MTS supports the joint labor-management Safety Committee, and the safety management system responsibilities outlined in the Agency Safety Plan. As evidence of our commitment to safety, every MTS policy shall be guided by and every transit worker shall perform their duties in furtherance of the following safety goals:

- Supporting safety through the provision of appropriate resources that fosters a safety culture;
- Integrating the management of safety among the primary responsibilities of all transit workers;
- Clearly defining transit workers' responsibilities in relation to the performance of our safety management system;
- Conducting hazard identification and evaluating safety risks, which includes a transit worker safety reporting program, in order to eliminate or mitigate safety risks;
- Ensuring that no action will be taken against any transit worker who discloses a safety concern through the transit worker safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;
- Complying with, and wherever possible exceeding, legislative, and regulatory requirements and standards;
- Ensuring that sufficiently skilled and trained transit workers are available to implement safety management processes;
- Ensuring that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are assigned only tasks for which they are adequately trained;
- Establishing and measuring our safety performance against realistic and data-driven safety performance indicators and safety performance targets;
- Continually improving our safety performance by ensuring appropriate safety management action is taken and is effective; and
- Ensuring externally supplied systems and services that support our operations are delivered to meet our safety performance standards.

Sharon Cooney
Chief Executive Officer
San Diego Metropolitan Transit System

March 13, 2025
Date

Chair of Board of Directors
San Diego Metropolitan Transit System

March 13, 2025
Date

transdev
the mobility company

SAFETY FIRST
Our Daily Priority at Transdev

Across each of our 18 countries, Transdev always places Safety First. This commitment is present every day in all the ways we ensure the health, safety and security of our teams, passengers, and the communities we serve.

Here in the U.S., I want to emphasize safety should serve as our guiding principle and top priority in all policies, procedures, and daily practices. Our goal is to ensure that every day is a Perfect Safety Day – a day with no preventable accidents or injuries.

The prevention of accidents, injuries, unsafe incidents, and illness is the responsibility of every Transdev employee. All employees of every level are expected to lead by example and

- **Provide, foster, and deliver a safe and healthy working environment**
- **Abide by all safety policies, rules, and regulations**
- **Expect and insist upon a total commitment to safety from fellow employees**
- **Immediately raise safety concerns to their supervisor or safety representative**

I am counting on every member of the Transdev team to ensure we view all decisions through the lens of safety and we always consider **Safety First.** Thank you for your strong daily focus on our shared health, safety, and security.



Laura Hendricks
CEO, Transdev U.S.

Laura J. Hendricks

SAFETY FIRST!

MAKE TODAY A PERFECT SAFETY DAY

OUR PURPOSE:
We empower freedom to move everyday thanks to safe, reliable and innovative solutions that serve the common good.

3.2 Goals

Transdev, on behalf of MTS Transit Services, is committed to providing the safest transportation possible for our employees, customers, the citizens of San Diego, and the communities we serve. We will:

- Provide and maintain a safe and healthy working environment
- Provide a safe and courteous transit system
- Follow best practices that will safeguard employees, customers, and persons interacting with transit property and equipment

Accidents are the result of unsafe acts committed by people and the existence of hazards or unsafe conditions, both of which are controllable and must be prevented to the maximum extent practicable in order to achieve Transdev's and MTS' commitment.

Our Safety Policy and our commitment to safety are at all times guided by the following principles:

- Safety is the responsibility of each and every employee
- Management has the responsibility to train all employees to work safely and to assure all employees work in a safe manner
- Preventing accidents, injuries, and incidents is good business
- Operating risks, hazards, and exposures can be safeguarded with active and effective safety practices
- Injuries and occupational illnesses can be prevented

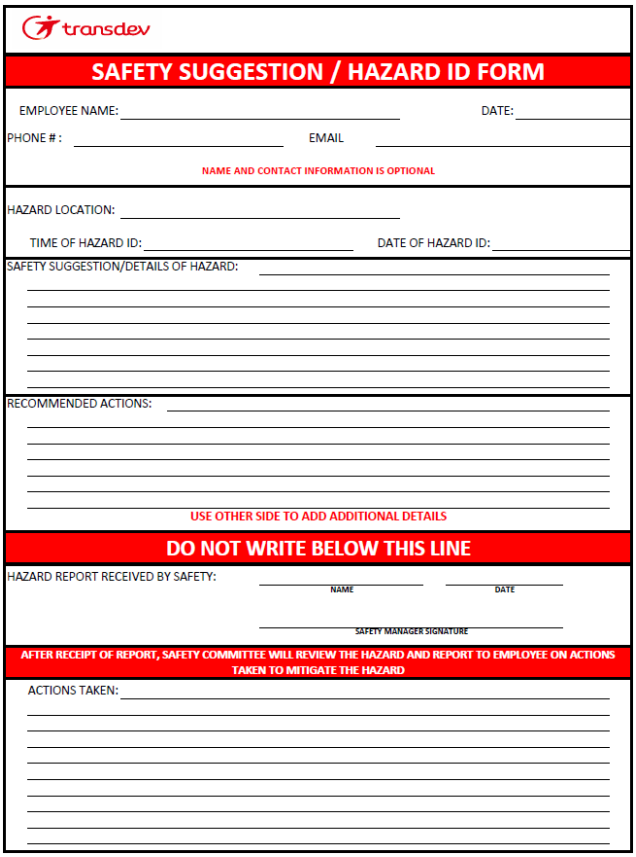
3.3 Employee Reporting Program

Employees and contractors are empowered to report safety hazards, unsafe conditions, and near misses to management. No action will be taken against an employee through the reporting program as long as the report or act was not illegal, negligent, willful, or a violation of company policy/procedure. Employees have multiple means of communicating their concerns which include:

- Verbally to their direct supervisor or other member of management;
- By use of phone/radio;
- Through their union representative;
- Completing an anonymous paper form and
- Through the Employee Safety Committee.

Hazards that cannot be adequately mitigated at the time of reporting are reported to the CSO and entered into a software database (Industry Safe or equivalent) for further assessment and mitigation (see Safety Risk Management).

Figure 2: Sample Paper Reporting Form



transdev

SAFETY SUGGESTION / HAZARD ID FORM

EMPLOYEE NAME: _____ DATE: _____

PHONE # : _____ EMAIL _____

NAME AND CONTACT INFORMATION IS OPTIONAL

HAZARD LOCATION: _____

TIME OF HAZARD ID: _____ DATE OF HAZARD ID: _____

SAFETY SUGGESTION/DETAILS OF HAZARD: _____

RECOMMENDED ACTIONS: _____

USE OTHER SIDE TO ADD ADDITIONAL DETAILS

DO NOT WRITE BELOW THIS LINE

HAZARD REPORT RECEIVED BY SAFETY: _____ NAME _____ DATE

_____ SAFETY MANAGER SIGNATURE

AFTER RECEIPT OF REPORT, SAFETY COMMITTEE WILL REVIEW THE HAZARD AND REPORT TO EMPLOYEE ON ACTIONS TAKEN TO MITIGATE THE HAZARD

ACTIONS TAKEN: _____

3.4 Safety Management Policy Communication

The Safety Management Policy Statement is communicated to all employees and contractors throughout the organization including: employees, managers, executives and the Board of Directors. This policy is communicated through:

- Employee Handbooks;
- Bulletin Boards;
- Newsletters; and
- Company Intranet

3.5 Authorities, Accountabilities, and Responsibilities

3.5.1 Board of Directors

The Board of Directors (Board) is responsible for setting policy for MTS, including Transit Services. The Board is required to approve the ASP initial document and all updates. At its regular meetings, the Board receives periodic safety briefings from Bus Operations. The Board has delegated agency management to the CEO, subject to various adopted Board policies and legal requirements.

3.5.2 Accountable Executive

The Board of Directors has designated the CEO as the Accountable Executive for the Agency. The Accountable Executive has ultimate responsibility for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout the Agency. These responsibilities include:

- Establishing, implementing, and promoting the Safety Policy Statement;
- Authority over financial and human resources;
- Authority over all activities and operations;
- Authority over final risk assessment ranking;
- Authority over final mitigation(s) of hazards/unsafe conditions;
- Briefing the Board of Directors; and
- Responsibility for carrying out the Transit Asset Management (TAM) Plan.

The CEO has delegated the authority and the day-to-day responsibilities of the agency safety plan for Transit Services to the Chief Operating Officer (COO) of Transit Services.

3.5.3 Chief Operating Officer (COO)

The COO reports directly to the CEO and is responsible for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout Transit Services. These responsibilities include:

- Implementing, and promoting the Safety Policy Statement;
- Authority over financial and human resources within Transit Services;
- Authority over all activities and operations within Transit Services;
- Authority over the risk assessment ranking within Transit Services;
- Authority over final mitigation(s) of hazards/unsafe conditions within Transit Service; and
- Briefing the Board of Directors on SMS related activities within Transit Services, as requested by the CEO.

The COO will support and encourage an open dialogue between the Chief Safety Officer and the CEO.

3.5.4 Chief Safety Officer

The Chief Safety Officer (CSO) is the Manager of Safety for Transit Services. The CSO has a dual reporting role with the COO and the CEO. As necessary to implement the Bus Agency Safety Plan and discuss relevant issues, the CSO has a duty and a right to report directly to and consult with the CEO. The CSO has independent and direct access to the CEO as needed regarding all safety related

issues. The CSO has regularly scheduled safety briefings with the CEO and COO. The CSO also reports to the COO on a day-to-day basis. The CSO is responsible for:

- Developing and maintaining SMS programs including the Bus Agency Safety Plan;
- Managing the Employee Reporting Program;
- Performing analysis of incidents, trends, and causes and making recommendations to reduce or eliminate the potential for recurrence;
- Assisting other departments with the development of training programs and procedures;
- Managing the review and analysis of all accidents, incidents and safety events to determine preventability and any other causal or contributing factors;
- Providing monitoring and follow-up with employees after preventable accidents;
- Serving as the Chair of the Employee Safety Committee;
- Coordinating with external emergency response agencies, including police, fire and emergency management agencies, regarding emergency response training, familiarization and review of emergency occurrences and Transit Services emergency preparedness plans; and
- Managing the Department of Motor Vehicles (DMV) Pull Notice Program and assuring all licenses, permits and certifications are in compliance.

3.5.5 Other Agency Leadership, Executive Management and Key Staff

3.5.5.1 Manager of Contract Operations and Passenger Facilities

The Manager of Contract Operations and Passenger Facilities directly reports to the COO and is responsible for:

- Providing day-to-day oversight of contractor compliance with the agency safety plan;
- Providing contract oversight of the Agency’s multi-year transit operations contracts;
- Monitoring ongoing facility maintenance activities dictated by Agency service contracts;
- Planning, directing, coordinating and reviewing Contract Services’ staff;
- Assisting with transportation activities and coordinating schedules, projects and programs as needed to ensure Contract Service quality and continuity with Agency goals and objectives;
- Overseeing the coordination of bus stop maintenance and other transit amenities, including administration of various vendor contracts;
- Working with appropriate staff to develop fleet capital replacement program; and

- Supporting Finance Department staff on discretionary and programmed grants applications.

3.5.5.2 Transit Operations Specialists

Transit Operations Specialists directly report to the Manager of Contract Operations and Passenger Facilities and are responsible for overseeing the MTS Bus Operations and BRT contract at East County and South bay Divisions. Transit Operations Specialists are responsible for overseeing Contractors efforts in:

- Implementing, promoting and monitoring compliance of the Safety Plan;
- Mitigation(s) of hazards/unsafe conditions within East County and South bay Contract Service Divisions;
- Analysis of incidents, trends, and causes, as well as recommendations to reduce or eliminate the potential for recurrence;
- Post-accident review and reporting;
- Coordinating with external emergency response agencies, including police, fire and emergency management agencies, regarding emergency response training, familiarization and review of emergency occurrences and Contractor's Transit Services emergency preparedness plans; and
- Providing monthly progress reports, as well as statistical and analytical support data.

3.5.5.3 Transdev Leadership, Executive Management and Key Staff

3.5.5.3.1 General Manager

The General Manager is Transdev's Top Executive for East County and South Bay Contract Service Divisions. Transdev's General Manager is responsible for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout the East County and South Bay Contract Service Divisions. These responsibilities include:

- Establishing, implementing, and promoting MTS' and Transdev's Safety Policy Statement;
- Authority over Transdev's financial and human resources;
- Authority over all of Transdev's activities and operations;
- Authority over Transdev's final risk assessment ranking;
- Authority over Transdev's final mitigation(s) of hazards/unsafe conditions; and
- Briefing the Manager of Contract Operations and Passenger Facilities.

The General Manager has delegated the authority and the day-to-day responsibilities of the Transdev agency safety plan to the East County and South Bay Division Managers.

3.5.5.3.2 East County and South Bay Division Managers

The East County and South Bay Division Managers directly report to the General Manager, and are responsible for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout East County and South Bay Contract Service Divisions. These responsibilities include:

- Directly overseeing and managing the MTS contract at East County and South bay Contract Service Divisions.
- Implementing, and promoting the Transdev Safety Policy Statement;
- Authority over financial and human resources within East County and South bay Contract Service Divisions.
- Authority over all activities and operations within East County and South bay Contract Service Divisions.
- Authority over the risk assessment ranking within East County and South bay Contract Service Divisions.
- Authority over final mitigation(s) of hazards/unsafe conditions within East County and South bay Contract Service Divisions; and
- Briefing the CSO and the Manager of Contract Operations and Passenger Facilities.

3.5.5.3.3 Director of Safety

The Director of Safety of East County and South Bay Contract Service Divisions is the designated Safety representative for Transdev. The Director of Safety directly reports to the General Manager, but is responsible for providing routine updates directly to the CSO of MTS and Administrative Staff overseeing the Transdev Contract. As necessary to implement the Transdev's Bus Agency Safety Plan and discuss relevant issues, the Director of Safety has a duty and a right to report directly to and consult with the General Manager. The Director of Safety has independent and direct access to the General Manager and MTS and Administrative Staff overseeing the Transdev Contract, as needed regarding all safety related issues. The Director of Safety has regularly scheduled safety briefings with the General Manager and MTS and Administrative Staff overseeing the Transdev Contract. The Director of Safety also reports to the General Manager on a day-to-day basis. The Director of Safety is responsible for:

- Developing and maintaining SMS programs including Transdev's Bus Agency Safety Plan;
- Managing Transdev's Employee Reporting Program;
- Performing analysis of Transdev's incidents, trends, and causes and making recommendations to reduce or eliminate the potential for recurrence;
- Assisting Transdev's other departments with the development of training programs and procedures;
- Managing the review and analysis of all Transdev's accidents, incidents and safety events, to determine preventability and any other causal or contributing factors;
- Providing monitoring and follow-up with Transdev's employees after preventable accidents;
- Serving as the Chair of Transdev's Employee Safety Committee;
- Coordinating with external emergency response agencies, including police, fire and emergency management agencies, regarding emergency response training, familiarization and review of emergency occurrences and Transdev's emergency preparedness plans; and
- Managing Transdev's Department of Motor Vehicles (DMV) Pull Notice Program and assuring all licenses, permits and certifications are in compliance.

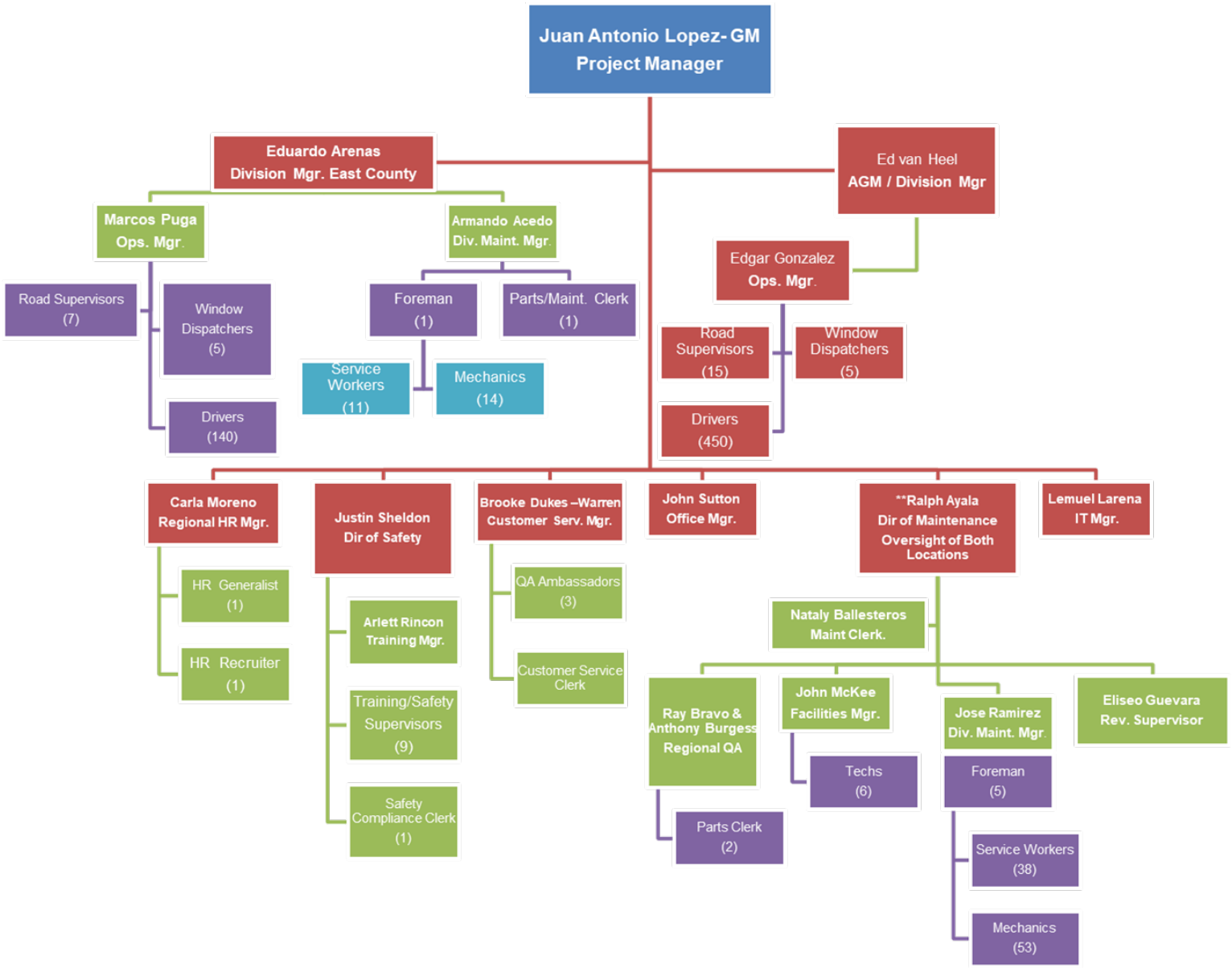
3.5.5.3.4 Director of Maintenance

The Director of Maintenance directly reports to the General Manager and is responsible for:

- Directing, organizing, developing and planning all Transdev's directly operated bus and facility maintenance functions;
- Providing oversight, contract compliance and support for all of Transdev's contracted service fleet and facility maintenance operations;
- Directing, coordinating and supervising the development, implementation and administration of capital plans and contracts for Transdev's fleet replacement, as well as service contracts providing maintenance for all Transdev's bus facilities and fleets;
- Overseeing the administration of applicable Transdev's Collective Bargaining Agreement (CBA);
- Overseeing Transdev's maintenance employee training, including the mentoring program; and
- Providing expertise and advice regarding Transdev's staffing decisions in Fleet and Facilities, including recommendations for hiring, promotion and termination; evaluation and the implementation of discipline and other remedial measures.

4 Organization Chart

Figure 3: Organization Chart



5 Meetings

5.1 CEO Safety Briefings

The CEO, COO, and CSO meet on a regular basis to review and discuss monthly safety performance. These topics include but are not limited to:

- Accidents & Injuries
- Hazard mitigation strategies
- Training activities
- Policy & Procedures
- Committee meetings
- Contract management
- Project updates

5.2 Transit Services Executive Staff Meetings

The CSO and other agency leadership within Transit Services meet together on a weekly basis with the COO to review and discuss updates from each department. These topics include but are not limited to:

- Accidents & Injuries
- Hazard mitigation strategies
- Training activities
- Policy & Procedures
- Committee meetings
- Contract management
- Project updates

5.3 COO Meetings with Contract Services and Transdev Leadership

The COO, CSO, and Manager of Contract Operations and Passenger Facilities meet on a monthly basis with Transdev Leadership to review and discuss updates regarding safety performance, safety risk management, safety assurance, and safety promotion. These topics include but are not limited to:

- Accidents & Injuries
- Existing hazards and mitigation techniques
- Training activities
- Policy & Procedures
- Committee meetings
- KPI goals
- Contract management
- Project updates
- Staffing levels

5.4 Transdev and MTS Contract Services Management Staff Meetings

The Director of Safety and Training and other leadership within Transdev's Executive Management Staff, meet together on a monthly basis with the Manager of

Contract Operations and Passenger Facilities as well as other leadership within Contract Services to review and discuss updates from each department. These topics include but are not limited to:

- Accidents & Injuries
- Hazard mitigation strategies
- Training activities
- Policy & Procedures
- Committee meetings
- Contract management
- Project updates
- KPI goals

5.5 Transdev's Employee Safety Committee

Transdev's Employee Safety Committee meets monthly and is comprised of representatives from both bargaining units (ATU, IBT), MTS Contract Services Management Staff, as well as contractor's management representatives from the Maintenance, Safety, and Operations Departments. The purpose of the safety committee is to: (1) identifying and recommending risk-based mitigations or strategies necessary to reduce the likelihood and severity of consequences identified through the agency's safety risk assessment; (2) identifying mitigations or strategies that may be ineffective, inappropriate, or were not implemented as intended; and (3) identifying safety deficiencies for purposes of continuous improvement.

5.6 Transdev's Accident/Injury Review Meetings

Transdev Management meets with the Transdev's National Safety Director and/or Regional Vice President a weekly basis. Topics include but are not limited to:

- Workplace Injuries
- Preventable Accidents
- Hazard mitigation strategies
- Training activities
- Policies & Procedures

5.7 Regional Safety Meetings

Transdev Management meets with Transdev's National Safety Director on a Bi-weekly basis. Topics include but are not limited to:

- Open & recently closed claims
- Workplace injury claims
- Hazard mitigation strategies

- Training activities
- Policy & Procedures
- DriveCam Performance
- KPI reviews

5.8 Emergency Preparedness and Response

5.8.1 Employee Training

Employees receive varying levels of emergency response training during the initial onboarding process depending on job position. Employees also receive applicable refresher training throughout the year through training programs and topics outlined in the Safety Promotion and Safety Communication sections of this document. Topics covered for emergency training include:

- Accident/Injury reporting
- Inspection protocols
- Passenger evacuations
- Road calls/Breakdowns
- Fire suppression
- Spill prevention, control and countermeasures (SPCC)
- Hazardous waste, operations, and emergency response (HAZWOPER)
- Conflict resolution and de-escalation techniques

5.8.2 Emergency Responder Training & Coordination

Transit Services participates in external agency emergency trainings and exercises whenever requested/invited by local municipal, county, state, or federal entities. These events include emergency events specific to the transit system as well as supporting other agencies with available resources (vehicles) to aid in external emergency response. Typical training events and exercises include:

- Vehicle familiarization
- Bus hijacking/SWAT
- Rescue/heavy lift extraction
- Homeland Security canine training
- Community based evacuations & temporary shelter
- Tabletop exercises

5.8.3 Vehicle Safety Equipment

Fixed route buses are equipped with the following safety features to reduce to the likelihood/severity of an emergency:

- Two-way radio
- GPS tracking

- Security cameras
- Discreet panic button
- Fire extinguisher
- Engine fire detection & suppression system (excludes battery electric buses)
- Interlock device(s)
- Fuel leak detection alarm (CNG buses only)
- Emergency exit windows & roof hatches
- Low air pressure alarm

6 Safety Risk Management

Safety Risk Management is a decision-making process that involves the identification, evaluation, and mitigation of hazards and unsafe conditions throughout the system. Hazards are to be eliminated or mitigated to lowest practical level with consideration given to financial and operational constraints. Transdev utilizes a decentralized process where each department is responsible for managing the hazards that exist within their department.

6.1 Safety Hazard Identification

All Transdev employees are responsible for identifying and reporting hazards and unsafe conditions to their immediate supervisor/manager. The supervisor/manager is responsible for the initial evaluation and mitigation of a reported hazard. If the supervisor/manager is unable to eliminate the hazard or effectively mitigate the hazard to an acceptable level, the hazard must be reported to the Director of Safety and Training. The Director of Safety and Training is responsible for documenting the reported hazard.

Hazards are generally identified through:

- Employee Reporting Program;
- Employee Safety Committee;
- Routine inspections;
- Training activities;
- Direct observation by supervisors, managers and/or safety personnel;
- Accident and incident investigations;
- Customer Service reports;
- Daily operations activity reports;
- Safety data analysis;
- Audits;
- Data and info provided by FTA or other oversight authority;
- Design/Planning process for capital projects;
- Procurement of goods and services; and
- New service implementation

6.2 Safety Risk Assessment

The Director of Safety is responsible for assessing safety risks. Analyzing hazards is subjective. Two reasonable people could assess the same hazard and determine a different probability or severity of an unfavorable outcome. Hazards are analyzed using the probability/severity matrix within this section (Table 5, Table 6, Table 7, and Table 8). The criteria listed in the severity and probability charts are intended to be guidelines only. Each hazard is unique; therefore, in addition to the severity and probability charts, the Director of Safety should also consider common sense, similar prior/existing hazards, historical data, and their professional experience when conducting the assessment. Hazards that are “unacceptable”, “undesirable”, or “acceptable with review by management” are entered into the Risk Register by the Director of Safety. Hazards that are “acceptable without review” are not required to be entered into the Risk Register. The Director of Safety is responsible for informing the General Manager, and Transdev’s Accountable Executive of any hazard that is “unacceptable” or “undesirable.”

Table 4: Severity

Severity		
Description	**Category**	**Criteria (worst likely credible outcome)**
Catastrophic	**1**	Could likely result in death, permanent total disability, severe property damage or irreversible environmental damage.
Critical	**2**	Could likely result in permanent partial disability, injuries or occupational illness that may result in hospitalization, or reversible significant property/environmental damage.
Marginal	**3**	Could likely result in injury or occupational illness resulting in one or more lost work days(s), reversible moderate property/environmental damage.
Negligible	**4**	Could likely result in injury or illness not resulting in a lost work day, minimal property/environmental impact.

Table 5: Likelihood

Likelihood		
Description	**Level**	**Specific Individual Item (Example of Frequency)**
Frequent	**A**	Likely to occur frequently or continuously. (Weekly, 100K miles)
Probable	**B**	Likely to occur several times. (Monthly, 1 million miles)
Occasional	**C**	Likely to occur sometime. (Yearly, 10 million miles)
Remote	**D**	Unlikely but reasonable or possible to occur. (Decade, 100 million miles)
Improbable	**E**	So unlikely, it can be assumed occurrence may not be experienced.
Eliminated	**F**	This level is used when potential hazards are identified and later eliminated.

Table 6: Hazard Assessment Matrix

Hazard Assessment Matrix				
	1 - Catastrophic	**2 - Critical**	**3 - Marginal**	**4 - Negligible**
A - Frequent	**1A**	**2A**	**3A**	**4A**
B - Probable	**1B**	**2B**	**3B**	**4B**
C - Occasional	**1C**	**2C**	**3C**	**4C**
D - Remote	**1D**	**2D**	**3D**	**4D**
E - Improbable	**1E**	**2E**	**3E**	**4E**
F - Eliminated	**N/A**	**N/A**	**N/A**	**N/A**

Table 7: Acceptability Levels

Acceptability Levels	
High	**Unacceptable**
Serious	**Undesirable** with management decision
Medium	**Acceptable** with review by management
Low	**Acceptable** without review

6.3 Safety Risk Mitigation

After a risk assessment has been conducted, the Director of Safety will identify parties responsible for mitigating the hazard. The responsible parties are generally department heads, those most knowledgeable about the hazard (subject matter experts), or those with the most adequate resources to mitigate the hazard.

The following are common methods and processes responsible parties typically use to mitigate hazards:

- Eliminate hazards by repair/replacement;
- Eliminate hazards through design/change of service;
- Incorporate engineered features or devices;
- Provide warning devices, signage and alarms;
- Establish written policy and procedures to address the hazard;
- Implement training activities;
- Use of personal protective equipment (PPE); and
- Communication of hazard with employees, passengers, and general public.

Responsible parties are required to update the Director of Safety. The Director of Safety is then responsible for updating Leadership within Transdev as well as recording the mitigation progress in the Risk Registry in Industry Safe. The Risk Registry is reviewed at the monthly COO Meetings with Contract Services and Transdev Leadership. The MTS Accountable Executive has the ultimate authority when deciding mitigations and the final assessment of a hazard. Hazards that remain at an unacceptable/undesirable level will continue to be monitored and revisited during the annual budget and capital improvement process.

7 Safety Assurance

7.1 Safety Performance Monitoring and Measurement

MTS and Transdev have established several activities to monitor operations and maintenance for compliance with procedures. These processes are also used to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended. Non-compliance with procedures is generally addressed through counseling, training, and other management oversight activities. Insufficient procedures are addressed through safety risk management activities.

Transdev Management and Supervisors are responsible for upholding established policies and procedures covered in documents such as CBAs, employee handbooks, training manuals, bulletins, memos, California Vehicle Code sections, etc. Supervisors/Managers typically utilize direct observations, job briefings, facility inspections, radio communications, and investigations to determine compliance. Employees who are not compliant with these procedures may receive in-person counseling, written observation letters, re-training, and/or progressive discipline depending on the severity of the event and the employee's work record.

7.1.1 Investigations

All employees are required to immediately report safety related events to their direct supervisor or the Bus Control Center/Radio room and complete a written accident/incident report. The Transdev Manager on duty is responsible for ensuring the appropriate response to the scene (dependent on available resources) and determining if a drug and alcohol test is required.

A Road Supervisor (RS) should be sent to the scene to investigate whenever a person is injured/claiming injury or there is a collision involving a bus or other mass transit vehicle. The RS will gather statements from persons involved/witnesses, collect insurance and other contact information, take photos of the scene, etc., and complete a written report.

Following the event, the Quality Assurance Supervisors will collect video from the bus camera system and facility camera system if available. The video is generally stored in either the camera system server or a shared network drive and preserved for at least one year after the event and may be stored longer as dependent on available storage space. The Director of Safety will collect and review all information and forward all written materials to Transdev's Risk Department and/or Transdev's Safety Team).

Transdev's Safety Team is responsible for reviewing events involving: vehicle collisions, claims of injury, wheelchair ramp use, and certain braking events. The Safety Team is chaired by the Director of Safety and also includes members from the Training Department and members from the Safety Department. The Safety Team meets regularly and reviews all available information to determine

preventability and any other causal or contributing factors. The Director of Safety informs applicable management and other involved employees of the Safety Team's findings.

The Director of Safety is responsible for ensuring all safety related information is entered in MTS's TransTrack Manager for tracking purposes and data analysis. The Director of Safety is also responsible for reporting all safety related data (entered into TransTrack Manager) to the General Manager, MTS Administrative Staff overseeing the Transdev Contract, and Transdev's Accountable Executive on a monthly basis. MTS Administrative Staff overseeing the Transdev Contract will provide a summary of the data to the COO on a monthly basis. The CSO is responsible for reporting applicable required information to the National Transit Database (NTD) on a monthly basis.

7.1.2 Drug & Alcohol Program

Transdev is a drug and alcohol-free workplace and has an established drug and alcohol policy that is compliant with 49 CFR parts 40 and 655. Every employee receives initial training upon hire. Supervisors/mangers shall receive two hours of training that includes a minimum of 60 minutes of training on the physical, behavioral, and performance indicators of probable drug use and at least 60 minutes of training on the physical, behavioral, speech, and performance indicators of probable alcohol misuse and the agency policy. Drug and alcohol testing is conducted under the following circumstances:

- Pre-Employment;
- Reasonable Suspicion;
- Post-Accident;
- Random;
- Assuming Safety Sensitive Duties; and
- Return to Duty / Follow-Up.

7.1.3 Driving Hours and On-Duty Time

Bus operators' schedules are assigned on a daily basis by an Operations Manager. The Operations Manager checks hours of service before scheduling upcoming workdays. The following records for all bus operators are generated, tracked, and stored in the system:

- The scheduled assignment of all drivers including regular workdays, day off work, overtime, vacations, holidays, absences, outside employment hours;
- The time the driver reports for duty each day;
- The time the driver is released from duty each day;
- The total number of hours the driver is on duty each day;
- The total scheduled driving time each day;

- The delay time at the end of each work piece; and
- The total time for the preceding seven days for drivers used for the first time or intermittently

Title 13 of the California Code of Regulations subsection 1212 and 1212.5 establish the following limits on commercial bus operating hours:

- Operators must have at least 8 hours off between work shifts;
- Maximum 10 hours driving time per day;
- Maximum 15 hours of on duty time; and
- Maximum 60 hours on-duty in 7 consecutive days, or 70 hours on-duty in 8 consecutive days.

In addition to state law, the applicable CBA establishes the following limits on scheduling and work hours:

- Drivers have at least 10 hours off between bid-in and scheduled work shifts; and
- Scheduled on-duty/spread work day limited to 12.5 hours.

7.1.4 DMV Pull Notice

Transdev enrolls all employees in the California Employer Pull Notice (EPN) program. The program is required for all commercial drivers as a means for employers to electronically verify and monitor driving records. Employees are enrolled upon hire and removed upon termination. Records indicate license type, expiration date, special certificates, endorsements, restrictions. Notices are also sent annually and when there is a change to license status including a ticket, accident, or suspension. MTS uses a web-based software solution company to manage the EPN program.

The Director of Safety is responsible for monitoring the records of all Transdev commercial drivers and union employees. The Director of Safety is responsible for notifying each department of status changes to the employee's eligibility to operate a bus or other vehicle. Each department is responsible for notifying the employee in their department of status changes, collecting documentation, and preventing them from operating a vehicle if they are not eligible to drive.

Transdev's Human Resources Department is responsible for checking a prospective employee's three (3) year driving record during the application and interview process. Transdev's Human Resources Department is responsible for monitoring the records of all management employees who do not have a commercial license.

The California Highway Patrol (CHP) performs an audit of t Transdev's EPN program during the annual terminal inspection.

7.1.5 Customer Complaint Investigation

Customer complaints are managed overall by Support Services Department. Customers can submit a complaint by mail, in-person at MTS's and Transdev's administrative offices, through the call center, through the MTS website or through MTS's mobile application. All customer's comments or complaints are entered into the Customer Review Module in SAP. The comments then investigated by the responsible department. Investigation measures may include interviewing staff and/or collecting video if appropriate. Final resolution is handled by department managers. The findings of the investigation are then entered into the Customer Review Module.

7.1.6 Operator Evaluation

Transdev's Behind the Wheel Trainers (BTWs), Road Supervisors (RS), Safety Supervisors and Managers conduct both directed and random ride evaluations that monitor a driver's performance while in revenue service. New drivers shall receive an on-board in-service evaluation check within 30 days, 60 days and again within 90 days of completion of training. The above-mentioned staff members complete Transdev's SF-1 Driver Skills Evaluation and Refresher Training Form for each ride. The report includes; Satisfactory, Unsatisfactory, or N/A check boxes and comment fields for various categories (Table 9).

Table 8: Operator Evaluation Categories

Operator Evaluation Categories		
Pre-Trip/Post Inspection	Equipment Usage	General
Intersections	Railroad Crossing	Communicate
Backing	Leave Room	Look Ahead
Look Around	Other	

The report is verified by the Safety Supervisor and/or The Director of Safety, and emailed to the Employee's direct Supervisor for appropriate disciplinary action if deemed necessary. Coaching and/or retraining is conducted by the Safety and Training Department. The Division Managers are responsible for final resolution of the reports

7.1.7 Vehicle Pre-Trip Inspections

Pre-trip inspections are conducted in accordance with State and Federal law. Pre-trip inspections are completed by bus operators in the bus yard before the

bus goes into revenue service. The pre-trip inspections also occur when bus operators make a relief on the road (excluding air brake test).

7.1.8 Vehicle Preventative Maintenance

Preventative maintenance and inspection is carried out at a minimum in accordance with the Original Equipment Manufacturer (OEM) recommendations. This process occurs based on miles and varies in the complexity based on the mileage interval. Inspections include:

- Brake inspection;
- Lube and oil filter;
- General inspection;
- Wheelchair ramp;
- Air conditioner;
- Electrical;
- Cooling;
- Compressed Natural Gas (CNG) and fire suppression;
- Farebox;
- Transmission; and
- Differential and diaphragms

All inspections are documented and kept for the life of the vehicle. Specific details on the preventative maintenance program are explained further in the Maintenance Manual that is maintained by the Maintenance Department. The California Highway Patrol (CHP) conducts an independent audit of the preventative maintenance program annually.

7.1.9 Internal Safety Reporting Programs

The Director of Safety routinely reviews safety data from various sources including: employee safety reports, safety meetings, the employee reporting program, customer service complaints, OSHA logs, and other safety communication channels that track safety performance information. The Director of Safety will review and assess the data, conduct further investigations, and use established safety risk management process as needed to ensure safety risk mitigations are effective.

7.1.10 Infectious Disease Control

Transdev monitors, implements, and updates strategies to minimize the exposure of the public, personnel, and property to hazards and unsafe conditions, consistent with current guidelines of the Centers for Disease Control and Prevention or a State health authority, to minimize exposure to infectious diseases. In addition, Transdev also adheres to the guidance MTS' agency Infectious Disease Control and Prevention Plan.

7.2 Management of Change

Changes that may introduce new hazards or impact the agency's safety performance are assessed through various processes. These changes include but are not limited to:

- Procurement of new goods/equipment;
- Changes to route design and special event detours;
- Operations/Maintenance procedure changes;
- Introduction of new technology;
- New regulatory requirements;
- Changes to operating environment including city/regional planning;
- Design and construction of capital projects; and
- Organizational changes

If management determines that a change may impact safety performance, the proposed change should be evaluated using the Safety Risk Management Process, which includes hazard identification, risk assessment, and risk mitigation. Any change that may introduce new hazards to the system should include the safety department. Please refer to the Safety Risk Management section of this document or contact a member of the safety department for more information regarding this process. If the safety department is not consulted and engaged during the decision-making process of the change, the project manager or individual who is approving/implementing the change is responsible for ensuring adequate safety risk management is conducted prior to making any changes.

7.3 Continuous Improvement

MTS establishes Safety Performance Targets, Key Performance Indicators and PIP goals annually. These goals are tracked and reported on a monthly and annual basis. The CSO meets with the CEO, COO, executive management and other key staff regularly to review and evaluate the agency's performance. Any identified deficiencies are addressed with a plan, under the direction of the Accountable Executive or their designee.

8 Safety Promotion

8.1 Safety Communication

Management promotes and communicates safety performance throughout the entire organization. This communication includes information on hazards and safety risk relevant to employees' roles and responsibilities. Employees are also informed of safety actions that are taken in response to reports submitted through the safety reporting program. The methods of communication include but are not limited to:

- Training Activities;

- Safety Committee;
- Meetings;
- Handbooks;
- Policies;
- Memos;
- Bulletins;
- Newsletters;
- Company Intranet;
- Job Briefings; and
- Department Information Monitors

8.2 Competencies and Training

8.2.1 Director of Safety - Training Program

The Director of Safety and Training participates in the Voluntary Bus Safety Certification Program as outlined in 49 CFR Part 672. This training includes the following courses:

- SMS Awareness;
- SMS Safety Assurance;
- SMS Principles for Transit;
- Transit Bus System Safety;
- Fundamentals of Bus Collision Investigation; and
- Effectively Managing Transit Emergencies.

The Director of Safety also includes:

- Drug and Alcohol;
- Harassment Prevention; and
- Management Development

8.2.2 Servicer Training Program

All servicers complete a comprehensive training program. This program includes: Code of Safe Practices, CNG fueling procedures, electric bus charging, bloodborne pathogen control program, Spill Prevention & Control Program (SPCC), and Maintenance Department policies and procedures.

Servicer refresher training includes but is not limited to:

- SPCC annual refresher training
- Injury Illness prevention Program
- Maintenance Safety Handbook
- Blood borne Pathogen Program
- CNG Policies and Procedures

- OSHA Training
- Hazardous Energies Lockout/Tagout
- Haz-Com Globally harmonized system
- Behind the wheel evaluations
- Preventable accident remediation

8.2.3 Mechanic Training Program

All mechanics complete an Initial 48 hours of in-house classroom training to be completed in 4 to 5 weeks, followed by 1 to 1 ½ months of on-the-job training with a mentor depending on each Mechanics previous level experience and skill set. In addition to the above mentioned, mechanics also receive the training program outlined in the servicer training program. Mechanics also receive Hazardous Waste Operations and Emergency Response (Haz-Com GHS)) training as well as forklift certification.

Mechanic refresher training includes but is not limited to:

- SPCC annual refresher training
- Injury Illness prevention Program
- Maintenance Safety Handbook
- Blood borne Pathogen Program
- CNG Policies and Procedures
- OSHA Training
- Hazardous Energies Lockout/Tagout
- Haz-Com Globally harmonized system
- Forklift recertification every 3 years
- Behind the wheel evaluations
- Preventable accident remediation
- De-escalation Training

8.2.4 Foreman and Maintenance Managers

Foreman and Maintenance Managers training includes, but is not limited to, the following:

- Drug and Alcohol;
- Harassment Prevention;
- Management Development;
- Toolbox training sessions;
- SPCC;
- HAZWOPER;
- Forklift recertification;
- Behind the wheel evaluations; and
- Preventable accident remediation.

- De-escalation Training

8.2.5 Bus Operator Training Program

All bus operators complete a 176-hour training program prior to operating a bus in revenue service on their own. The training program is comprised of both classroom and behind the wheel driving. Operators are required to receive and maintain a class B commercial driving license, with a passenger and air brake endorsement. Operators are also required to have a valid medical certificate and Verification of Transit Training (VTT) certificate. Training topics includes, but are not limited to, the following:

- Bus operation and defensive driving;
- Destination signs;
- Radio communication;
- Customer service;
- ADA;
- Emergency procedures; and
- Route training

Bus Operator refresher training includes, but is not limited to, the following:

- VTT annual training;
- Accident remediation;
- Defensive driving;
- Conflict resolution;
- Policy and procedures; and
- Behind the wheel evaluations

8.2.6 Supervisors and Managers

Supervisors and Managers training includes, but is not limited to, the following:

- Drug and Alcohol;
- Harassment Prevention;
- Management Development; and
- Preventable accident remediation

APPENDIX B

Bus Safety Plan
(Public Transportation Agency Plan pursuant to 49 CFR 673)

First Transit

MTS Contract-Operator at Copley Park Maintenance Facility (CPMF)





First Transit Agency Safety Plan

1. Transit Agency Information

Transit Agency Name	San Diego Metropolitan Transit System (MTS)			
Transit Agency Address	1255 Imperial Ave Suite 1000, San Diego CA. 92101-7490			
Name and Title of Accountable Executive	Sharon Cooney, CEO MTS			
Name of Chief Safety Officer or SMS Executive	Jared Garcia, Manager of Safety MTS			
Mode(s) of Service Covered by This Plan	Contracted Fixed Route Bus, Contracted Paratransit, Contracted Paratransit Taxi		**List All FTA Funding Types (e.g., 5307, 5310, 5311)**	5307, 5310, 5337, 5339
Mode(s) of Service Provided by the Transit Agency (Directly operated or contracted service)	Directly Operated Light Rail, Directly Operated Fixed Route Bus, Contracted Fixed Route Bus, Contracted Commuter Bus, Contracted Paratransit, Contracted Paratransit Taxi			
Does the agency provide transit services on behalf of another transit agency or entity?	Yes	No **X**	**Description of Arrangement(s)**	
Name and Address of Transit Agency(ies) or Entity(ies) for Which Service Is Provided	San Diego Metropoliton Transit System 1255 Imperial Ave Suite 1000 San Diego CA 92101			

2. Plan Development, Approval, and Updates

Name of Entity That Drafted This Plan *(Location Code)*	**First Transit: *55826***	
Safety Committee Approval	**Signature of Chief Safety Officer**	**Date of Approval**
	Jared Garcia	1/16/2025
Signature by the Accountable Executive	**Signature of Accountable Executive**	**Date of Signature**
		3/13/2025
Approval by the Board of Directors or an Equivalent Authority	**Signature of Board of Directors**	**Date of Approval**
		3/13/2025
Certification of Compliance	**Name of Individual/Entity That Certified This Plan**	**Date of Certification**
		3/13/2025

Version Number and Updates

Record the complete history of successive versions of this plan.

Version Number	Section/Pages Affected	Reason for Change	Date
1.0	All pages are original version	First Official version of Safety Plan	7/30/2020
1.0	All	Annual Review	January 2021
1.0	All	Annual Review	January 2022
2.0	Sections 3, 4, 7	Bipartisan Infrastructure Law	February 2023
2.0	All	Annual Review	January 2024
3.0	Sections3, 4	FTA Requirements	January 2025
4.0	Risk Reduction Program	FTA Requirements	March 2026

Annual Review and Update of the Public Transportation Agency Safety Plan

Describe the process and timeline for conducting an annual review and update of the Public Transportation Agency Safety Plan.

This plan will be reviewed and updated annually during the month of January by the Chief Safety Officer. Proposed changes are reviewed with the Accountable Executive, Executive Management and Key Staff. The Accountable Executive will review and approve any changes, sign the updated plan, and then forward the plan to the Board of Directors for final review and approval. Updates to this plan may be made when there are:

- Changes to: safety performance targets, safety management policy, safety risk management, safety assurance, and safety promotion;
- Changes to: The Accountable Executive, COO, or CSO;
- Significant changes to service delivery;
- Significant changes to the organizational structure;
- New process/procedures are introduced that impact safety;
- Changes to available resources or priorities that support SMS; and
- Changes required by the Federal Transit Administration (FTA), California Public Utilities Commission (CPUC), California Department of Transportation (Caltrans), San Diego Association of Governments (SANDAG), etc. or other similar oversight agency.

MTS conducts an annual safety performance assessment in conjunction with the annual review. This assessment includes a review of the prior year's performance involving the Safety Performance Targets, Key Performance Indicators and applicable Performance Incentive Program (PIP) goals. The assessment may also include reviewing identified safety deficiencies, or other areas involving safety performance.

Updates made to the Bus Agency Safety Plan will be documented in the version number and updates of this plan.

At First Transit, review of safety practices is an ongoing process, not one limited to scheduled reviews. As policies/procedures and training techniques change throughout the year they are updated and communicated throughout the organization. All changes are reviewed and approved by the Senior Director of Safety and the Vice President of Safety – First Transit.

Prior to the beginning of each fiscal year, First Transit's Safety Plan is reviewed by Executive management and revised based on the safety data collected and analyzed, and changes to policies and procedures made throughout the year. The revised plan is then disseminated to San Diego location for implementation.

3. Safety Performance Targets

Safety Performance Targets

Specify performance targets based on the safety performance measures established under the National Public Transportation Safety Plan. (Evaluated per calendar year.)

MTS may adjust performance targets over time, as data is collected and as SMS implementation matures. MTS performance targets are calculated using a 3-year rolling average of the data submitted to the National Transit Database (NTD). The safety performance targets are evaluated for each calendar year (January 1 – December 31).

Definitions
Definitions are based on the NTD Safety and Security Policy Manual.

Assault on a Transit Worker: A circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with,
disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

Fatality – Death confirmed within 30 days of the event (including suicides). Fatalities that occur because of illnesses or other natural causes (including individuals who are found deceased) are not reportable.

Injury - Any damage or harm to persons that requires immediate medical attention away from the scene because of a reportable event must be reported as an injury. MTS reports each person transported away from the scene for medical attention as an injury, whether or not the person appears to be injured.

Safety Events – Collisions that meet NTD thresholds for injuries, fatalities, property damage, or evacuation; vehicle towed from the scene involving a transit revenue vehicle; fires; hazardous materials spills, acts of God; evacuations for life safety reasons; other safety events listed in NTD policy manual.

System Reliability - mean distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures.

Safety Performance Measures	
Performance Measure	**Description**
1a - Major Events	This includes all safety and security major events as defined by the NTD.
1b - Major Event Rate	This includes all safety and security major events as defined by the NTD, divided by VRM.
1.1 - Collision Rate (new)	This includes all collisions reported to the NTD, divided by VRM.
1.11 - Pedestrian Collision Rate (new)	This includes all collisions “with a person,” as defined by the NTD, divided by VRM.
1.1.2 - Vehicular Collision Rate (new)	This includes all collisions “with a motor vehicle,” as defined by the NTD, divided by VRM.
2a - Fatalities	This includes all fatalities as defined by the NTD.
2b - Fatality Rate	This includes all fatalities as defined by the NTD, divided by VRM.
2.1 Transit Worker Fatality Rate (new)	This includes all transit worker fatalities as defined by the NTD, including the categories “Transit Employee/Contractor,” “Transit Vehicle Operator,” and “Other Transit Staff,” divided by VRM.
3a - Injuries	This includes all injuries as defined by the NTD.
3b - Injury Rate	This includes all injuries as defined by the NTD, divided by VRM.
3.1 Transit Worker Injury Rate (new)	This includes all transit worker injuries as defined by the NTD, including the categories “Transit Employee/Contractor,” “Transit Vehicle Operator,” and “Other Transit Staff,” divided by VRM.
4a - Assaults on Transit Workers (new)	This includes all assaults on transit workers as defined by the NTD.
4b - Rate of Assaults on Transit Workers (new)	This includes all assaults on transit workers as defined by the NTD, divided by VRM.
5 - System Reliability	This includes Major Mechanical System failures as defined by the NTD.

Safety Performance Target Coordination *Describe the coordination with the State and Metropolitan Planning Organization(s) (MPO) in the selection of State and MPO safety performance targets.*		
Safety Performance Targets are made available to state of California including the Public Utilities Commission (CPUC), Caltrans, and the San Diego Association of Governments (SANDAG), MTS's Metropolitan Planning Organization (MPO), to aid in the planning process. Coordination with these agencies, in the selection of safety performance targets is accomplished to the maximum extent practicable. MTS officially transmits its targets in writing to the State and MPO following the annual review and certification. This transmission will take place in February of each year.		
Targets Transmitted to the State[1]	**State Entity Name**	**Date Targets Transmitted**
	California Public Utilities Commission (CPUC)	See Footnote 1
	California Department of Transportation (Caltrans)	See Footnote 1
Targets Transmitted to the Metropolitan Planning Organization(s)	**Metropolitan Planning Organization Name**	**Date Targets Transmitted**
	San Diego Association of Governments (SANDAG)	7/7/2020

[1] Although MTS has offered to share Bus Safety Performance Targets with CPUC and Caltrans, both have stated it is not necessary to send Bus Safety Performance Targets for their review. As required per 49 CFR 673.15, MTS will coordinate and share Bus Safety Performance Targets with state entities to the maximum extent practicable

4. Safety Management Policy

San Diego Metropolitan Transit System
Safety Management Policy Statement

The San Diego Metropolitan Transit System (MTS) has established this Safety Management System Policy Statement to emphasize its overall commitment to the safety of our passengers, our operators, our staff, and the general public. This Safety Management System Policy Statement provides direction for MTS's safety program, which applies to every facet of MTS operations.

The management of safety is MTS's highest priority. MTS is committed to safety throughout the entire organization, from the Board of Directors to the front-line transit workers.

MTS will ensure that all transit service delivery activities take place under a balanced allocation of organizational resources to achieve the highest level of safety performance and meeting established standards. MTS is committed to developing, implementing, maintaining, and constantly improving our processes. MTS supports the joint labor-management Safety Committee, and the safety management system responsibilities outlined in the Agency Safety Plan. As evidence of our commitment to safety, every MTS policy shall be guided by and every transit worker shall perform their duties in furtherance of the following safety goals:

- Supporting safety through the provision of appropriate resources that fosters a safety culture;
- Integrating the management of safety among the primary responsibilities of all transit workers;
- Clearly defining transit workers' responsibilities in relation to the performance of our safety management system;
- Conducting hazard identification and evaluating safety risks, which includes a transit worker safety reporting program, in order to eliminate or mitigate safety risks;
- Ensuring that no action will be taken against any transit worker who discloses a safety concern through the transit worker safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;
- Complying with, and wherever possible exceeding, legislative, and regulatory requirements and standards;
- Ensuring that sufficiently skilled and trained transit workers are available to implement safety management processes;
- Ensuring that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are assigned only tasks for which they are adequately trained;
- Establishing and measuring our safety performance against realistic and data-driven safety performance indicators and safety performance targets;
- Continually improving our safety performance by ensuring appropriate safety management action is taken and is effective; and
- Ensuring externally supplied systems and services that support our operations are delivered to meet our safety performance standards.

Sharon Cooney
Chief Executive Officer
San Diego Metropolitan Transit System

March 13, 2025
Date

Chair of Board of Directors
San Diego Metropolitan Transit System

March 13, 2025
Date

At First Transit, safety is more than a policy statement. Management believes that working safely promotes quality, productivity, and profitability. Prevention of collisions and personal injuries is of critical importance to everyone. Management is committed to providing a safe workplace, the proper training, protective equipment, and a work environment conducive to safe practices and policies.

All employees are required to perform their duties safely and with concern for the safety of our passengers, other employees and the public. **First Transit will not perform any service, nor transport or use a product, unless it can be done safely.**

First Transit employs a company-wide safety concept, **"BeSafe"**. The main purpose of BeSafe is to reduce collisions and injuries by increasing the communications between employees and managers about safety related issues. As part of this process, employees of all levels are encouraged to initiate reports of any near miss, route and security hazards, or any unsafe condition. When a report about a safety or security concern is filed, it is investigated, which includes follow-up with the reporting employee regarding the resolution of the report.

First Transit will not retaliate against nor impose any other form of retribution on any employee because of his or her good faith reporting of a safety issue/concern, another person's suspected violation of Company policies or guidelines, or any alleged violations of federal, state or local laws.

To ensure that each employee understands and performs their job functions in the BeSafe manner, the **BeSafe Handbook**, is issued to each employee and sized to fit in the safety lanyard or vest, which each employee must wear while on duty.

The **BeSafe Principles** provide the basic truths and fundamentals about working safely in our workplace and on our vehicles. All First Transit employees are expected to adopt these principles and put them into practice. Together a safe work environment is created, free from injury to each other and our passengers.

The motto for the BeSafe Principles is: **"Think Safe, Act Safe, BeSafe."** This motto is each employee's instruction to work safely at all times.

If an employee feels they cannot perform a task safely, they don't perform the task. The employee has been trained and encouraged to stop work and immediately advise management of issues preventing them from working safely and what would be required to perform the task safely.

The BeSafe Principles include:

- **Prevent injury to myself and others.**
  - Be aware of any hazardous condition or practice that may cause injury to people, damage to property, or the environment.
  - Use the BeSafe Handbook to record and report.
- **Perform all necessary safety checks and risk assessments of the work area and job to be performed before any work begins.**
  - Speak to management **before** work is started if unsure of the required safety and risk assessments.
- **Follow all safety procedures, signs and instructions.**
  - If these are not understood, speak to management before work begins.

- **Keep work area clean and tidy at all times.**
  - Untidy areas could cause injury to the employee or their colleagues and waste time and energy.
- **Wear protective clothing and equipment (PPE) as required.**
  - Keep PPE in good working order, wear it correctly and ask for a replacement if it becomes damaged or unfit for use.
- **Use only the correct tools and equipment authorized and trained to use for the job.**
  - Check that they are in good condition before use and use them safely.
- **Only adjust and repair any piece of work equipment trained on and authorized to do so.**
  - Never modify any equipment that changes the designed use of the equipment or alters a safety feature.
- **Assess any load and capability to move it before lifting.**
  - Get help with any heavy or awkward items and follow the correct lifting techniques.
- **Report all injuries, incidents and near misses to management.**
  - Seek help immediately and first aid (if necessary).
- **Tell management of any suggestions to prevent injuries in the workplace**
  - Note suggestions made and discuss with management.

Safety Management Policy Communication

Describe how the safety management policy is communicated throughout the agency's organization. Include dates where applicable.

Communication of Local Safety Concerns

The Location Safety Manager is at the center of the local safety communication process and is responsible for compiling safety reports to include the following:

- Accident and injury data for previous month
- Security incident data
- Safety and security audit data and recommendations
- Safety Solutions Team (SST) meeting minutes
- BeSafe near miss and hazard reporting

This person reports directly to the Location General Manager (LGM) and routinely meets formally with the LGM, one-on-one, to provide updates on safety issues, safety priorities, and hazard management. The Location Safety Manager (LSM) also meets informally with the LGM to provide updates on safety issues on an as-needed basis.

The Location Safety Manager also participates in the Safety Solutions Team (SST) meetings to discuss safety priorities, safety issues, and hazard management, and to communicate safety-related information across all departments.

- The LSM and the LGM have the authority to correct or suspend work for conditions determined to be unsafe, or pose a hazard to customers, employees, contractor employees, the general public, or endangers the safe passage of vehicles, until the unsafe condition or hazard can be mitigated or corrected.

The Region Safety Managers also conduct regular internal reviews of local operations. They are to ensure that each location is audited at least every two to three years, with high risk locations audited annually for compliance using the risk-based **Location Safety Review.**

Location Safety Review	
Category	**Description**
Scope of Safety Reviews	First Transit locations are selected based upon risk-based criterion. Individual locations receive a review every 2-3 years
Risk-Based Selection Criterion	Locations selected based on declining 3-year reviews; sites with new location managers; high collision/injury Accident Frequency Rate (AFR); prior year failing score
Review Format	More narrow and focused audit template which includes a balance of compliance assurance as well as location-specific risks and safety performance.
Findings and Follow-Up	Action plans are developed in conjunction with location staff and use a red/yellow/blue/green method to prioritize. All action items are entered, and incomplete action items are tracked within the **Safety Toolbox**. **Strong** **Highly Effective** **Some Improvement Needed** **Much Improvement Needed**
Escalation Process	Items requiring escalation to Senior Director of Safety/Vice President of Safety – First Transit remain intact. Through the use of Safety Toolbox, unresolved actions are designed to escalate to the Location General Manager/Region Safety Manager.
Visibility	Review results and action items are routinely shared with the Location General Manager/Region Safety Manager/Executive Management. This is augmented by the escalation process for unresolved action items as noted above.

Corporate Communication of Safety Concerns

Executive Safety Meetings are routinely held where each department discusses their concerns and progress in the area of safety and safety related concerns. Recommendations are considered, and necessary changes implemented. All complaints by departments are addressed immediately.

Minutes from the Executive Safety meeting are distributed to and posted at each location. Action items are addressed at the following meeting.

Executive safety meetings are conducted in the following formats.

First Group Executive Safety Committee (ESC)

- Consists of President, COO, and Safety Vice President of each operating group
- Discussions include safety performance, trend analysis, program oversight

First Group Safety Council

- Consists of Vice Presidents of Safety for all operating divisions
- Discussions include safety performance, trend analysis, and safety oversight

First Group America Safety Council

- Consists of Safety Senior Directors and Safety Vice Presidents
- Discussions include safety performance, trend analysis, best practices, and program oversight

Performance Review Management (PRM)

- Consists of Senior Region Vice Presidents, Region Vice Presidents, Region Directors of Operations, Region Director of Maintenance, Region Directors of Safety and Region Safety Managers
- Discussions include regions safety performance

Safety Advisory Committee

- Consists of a sampling of Location General Managers, Region Directors of Operations, Region Safety Directors and Region and Local Safety Managers
- Discussions include review of policy and procedures, training, and safety awareness

Authorities, Accountabilities, and Responsibilities	
Board of Directors	The Board of Directors (Board) is responsible for setting policy for MTS, including Transit Services. The Board is required to approve the ASP initial document and all updates. At its regular meetings, the Board receives periodic safety briefings from Bus Operations. The Board has delegated agency management to the CEO, subject to various adopted Board policies and legal requirements**.**
Accountable Executive	The Board of Directors has designated the CEO as the Accountable Executive for the Agency. The Accountable Executive has ultimate responsibility for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout the Agency. These responsibilities include: • Establishing, implementing, and promoting the Safety Policy Statement; • Authority over financial and human resources; • Authority over all activities and operations; • Authority over final risk assessment ranking; • Authority over final mitigation(s) of hazards/unsafe conditions; • Briefing the Board of Directors; and • Responsibility for carrying out the Transit Asset Management (TAM) Plan. The CEO has delegated the authority and the day-to-day responsibilities of the agency safety plan for Transit Services to the Chief Operating Officer (COO) of Transit Services. The COO reports directly to the CEO and is responsible for ensuring that SMS is effectively implemented and that action is taken, as necessary, to address substandard performance throughout Transit Services. These responsibilities include: • Implementing, and promoting the Safety Policy Statement; • Authority over financial and human resources within Transit Services; • Authority over all activities and operations within Transit Services; • Authority over the risk assessment ranking within Transit Services; • Authority over final mitigation(s) of hazards/unsafe conditions within Transit Service; and • Briefing the Board of Directors on SMS related activities within Transit Services, as requested by the CEO. The COO will support and encourage an open dialogue between the Chief Safety Officer and the CEO.
Chief Safety Officer or SMS Executive	The **Chief Safety Officer (CSO)** is the **Manager of Safety for Transit Services**. The CSO has a dual reporting role with the COO and the CEO. As necessary to implement the Bus Agency Safety Plan and discuss relevant issues, the CSO has a duty and a right to report directly to and consult with the CEO. The CSO has independent and direct access to the CEO

	as needed regarding all safety related issues. The CSO has regularly scheduled safety briefings with the CEO and COO. The CSO also reports to the COO on a day-to-day basis. The CSO is responsible for: • Developing and maintaining SMS programs including the Bus Agency Safety Plan; • Managing the Employee Reporting Program; • Performing analysis of incidents, trends, and causes and making recommendations to reduce or eliminate the potential for recurrence; • Assisting other departments with the development of training programs and procedures; • Managing the review and analysis of all accidents, incidents and safety events to determine preventability and any other causal or contributing factors; • Providing monitoring and follow-up with employees after preventable accidents; • Serving as the Chair of the Employee Safety Committee; • Coordinating with external emergency response agencies, including police, fire and emergency management agencies, regarding emergency response training, familiarization and review of emergency occurrences and Transit Services emergency preparedness plans; and • Managing the Department of Motor Vehicles (DMV) Pull Notice Program and assuring all licenses, permits and certifications are in compliance.
MTS Executive Management Leadership and Key Staff	**Manager of Paratransit and Mini Bus** The Manager of Paratransit and Mini Bus directly reports to the COO and is responsible for: • Organizing, developing, planning and directing all of MTS' Paratransit and Mini Bus functions and ensuring alignment of these functions with the goals and critical business outcomes of MTS • Manages the MTS Americans with Disabilities Act ("ADA") Paratransit program, and ensures full compliance with ADA regulations with respect to operations, client certification, call center operations and revenue service. • Manages the fixed route "Mini Bus" program and oversees the operations and management contract between MTS and the service provider(s). • Prepares operating and capital budgets, monitors service performance, conducts community outreach, represents MTS on disabled advocacy and transportation committees, and evaluates existing and proposed transit services. • Serves as the primary contact for paratransit and minibus service and consultant contracts. **Supervisor of Paratransit and Minibus** The Supervisor of Paratransit and Minibus directly report to the Manager of Paratransit and Minibus and is responsible for overseeing the MTS Fixed Route Minibus and Paratransit contract at the Copley Park Division. The Supervisor of Paratransit and Minibus is responsible for overseeing Contractors efforts in:

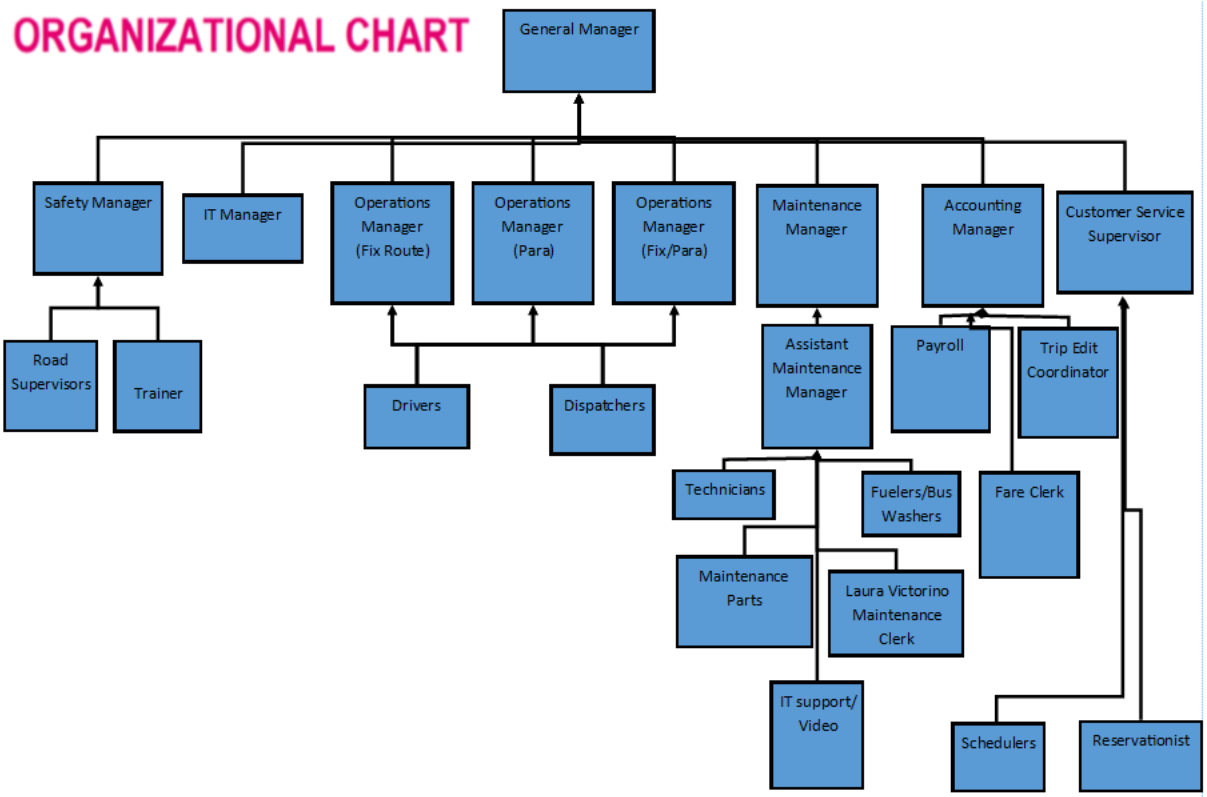
	• Implementing, promoting and monitoring compliance of the Safety Plan; • Mitigation(s) of hazards/unsafe conditions within the Copley Park Division; • Analysis of incidents, trends, and causes, as well as recommendations to reduce or eliminate the potential for recurrence; • Post-accident review and reporting; • Coordinating with external emergency response agencies, including police, fire and emergency management agencies, regarding emergency response training, familiarization and review of emergency occurrences and Contractor's Transit Services emergency preparedness plans; and • Providing monthly progress reports, as well as statistical and analytical support data
First Transit Executive Management Leadership and Key Staff	<u>Region Staff</u> • Senior Vice President: Works closely with the region staff to ensure quality service at the location. He ensures that the location adheres closely to First Transit's safety mission and vision. • Region Vice President: is responsible for making certain all region management members to maintain quality service and client satisfaction. He provides direction and assistance to location managers, including P&L, budgets, and personnel He is responsible for hiring and training new managers at the location. • Region Director of Operations: is responsible for overseeing daily operations, system performance, location safety, budget preperation, and location staffing levels. • Region Safety Manager: The Region Safety Manager ensures management services are provided according to policies, as well as maintaining quality and client satisfaction, and that the location has the current safety programs in place. • Region Director of Maintenance: provides oversight, technical assistance, training, and "best practices" for the location. <u>Location Staff</u> • General Manager: Participates fully with the client to ensure the operation is running effectively and acts as mediator when safety related problems arise. The GM is also responsible for ensuring implementation of the National Safety Program. • Operations Manager/Assistant General Manager: Supervises the day-to-day operations of Access, MiniBus and the SVCC operations. Other important roles include team building, training, client relations, and employee relations. • Safety Manager: The SM routinely is in contact with the operation and is responsible for ensuring their locations have the current safety programs in place; auditing local safety efforts; reviewing all accident and injury claims; reviewing safety statistics; and coordinating corporate assets to address specific deficiencies found on the local level. • Accounting Manager: Rresponsible for financial oversight such as budgeting, accounting and payroll. Implements policies and procedures related to accounting, budgeting, payroll and fare collection.

- IT Manager: Reviews drivers' pre- and post-trip inspections from the night before, looking for technological issues. Responsible for all IT-related functions including setting up new user accounts, maintaining fare box technology, maintaining Apollo technology and installations on new vehicles, and system trouble-shooting.

- Maintenance Manager: Provides oversight of maintenance functions, carefully motitring maintenance standards, departmental efficiencies, an maintenance training programs. He ensures that all scheduled and unscheduled vehicle repairs and general maintenance at the facility are completed on time.

- Operations Manager Paratransit: Responsible for instituting new policies and procedures to ensure safe, cost effective, on-time performance of the Access operation. The Operations Manager Paratransit is also the point of contact for the investigation and documentation of customer complaints for MTS Access.

- Operations Manager Fixed-route: Manages the day-to-day operations of MTS MiniBus/SVCC, instituting new approaches and procedures to ensure safe, cost-effective, and on-time performance of the MiniBus/SVCC operations.



Additional Accountability

(Local Staff Responsibility)

To ensure safety responsibility and accountability throughout the organization from local operations to corporate management, First Transit uses the following **Safety Responsibility and Task Matrix**. Responsibilities are assigned at the local level.

The responsibilities and tasks are assigned to Maintenance, Operations, or Human Resources and the responsible person for each is identified for each First Transit location.

This process ensures that the pertinent safety items are covered, and that each person knows his or her areas of responsibility.

Safety Responsibility and Task Matrix					
Responsibilities and Tasks	**OPS**	**MNT**	**HR**	**OTHER**	**Responsible Personnel**
Establish annual safety objectives for submission to the GM at the beginning of each fiscal year				x	Safety Manager
Submit a report on the safety performance at the end of each fiscal period				x	Safety Manager
Submit the following: period operations and safety data; accident and incident reports; and site safety review results				x	Safety Manager
The GM or their designee has the authority to direct that work or conditions have been determined to be unsafe or pose a hazard to customers, employees, contractor employees, the general public, or endangers the safe passage of buses be suspended or restricted until the unsafe condition or hazard can be mitigated or corrected	x				Operations Manager
Management of system safety, occupational health and safety, accident and incident investigation,				x	Safety Manager

		environmental protection and monitoring the implementation of the Safety Management System (SMS) Program Plan						
		Review of all safety aspects of departmental procedures including: First Transit policies/instructions; Standard Operating Procedures; HR policies; safety and health policies	x	x	x	x	All Managers	
		SMS Review and Modification				x	Safety Manager	
		Safety Solutions Team Meetings	x			x	Operations and Safety	
		Daily Safety & Health Walkthrough	x			x	Operations and Safety	
		Safety related reports to external agencies				x	Safety Manager	
		Near miss and route hazard report investigations	x			x	Operations and Safety	
		Investigation of safety related trends				x	Safety Manager	
		Coordination with United States and State Departments of Labor and Occupational Safety and Health Administration (OSHA)				x	Safety Manager	
		Environmental Management Oversight				x	Safety Manager	
		Hazard Management Process		x		x	Operations and Safety	
		Managing Safety Validation of Change Process				x	Safety Manager	
		Safety Data Reporting				x	Safety Manager	
		Investigations				x	Safety Manager	
		Advise to update SOPs, Rules, and Emergency Plans				x	Safety Manager	
		Emergency Response	x	x	x	x	All Managers	

Fire Protection	x	x	x	x	All Managers
Shop Safety Hazardous Tools Inspections		x			Maintenance
Review Vehicle Maintenance and Failure Data		x			Maintenance
Perform Vehicle Maintenance Inspections/Audits		x			Maintenance
Training, Certification, Review, and Audit		x		x	Maintenance and Safety
Personal Protective Equipment Review		x		x	Maintenance and Safety
Hazardous Materials Management		x		x	Maintenance and Safety
Drug and Alcohol Abuse Program				x	Safety Manager
Procurement				x	Safety Manager

Meetings & Oversight	
CEO Safety Briefings	The CEO, COO, and CSO meet on a regular basis to review and discuss monthly safety performance. These topics include but are not limited to: • Accidents & Injuries • Hazard mitigation strategies • Training activities • Policy & Procedures • Committee meetings • Contract management • Project updates
Transit Services Executive Staff Meetings	The CSO and other agency leadership within Transit Services meet together on a weekly basis with the COO to review and discuss updates from each department. These topics include but are not limited to: • Accidents & Injuries • Hazard mitigation strategies • Training activities • Policy & Procedures • Committee meetings • Contract management • Project updates

COO Meetings with Contract Services and First Transit Leadership	The COO, CSO, and Manager of Paratransit and Minibus meet on a quarterly basis with First Transit Leadership to review and discuss updates regarding safety performance, safety risk management, safety assurance, and safety promotion. These topics include but are not limited to: • Accidents & Injuries • Existing hazards and mitigation techniques • Training activities • Policy & Procedures • Committee meetings • KPI goals • Contract management • Project updates • Staffing levels
First Transit and MTS Contract Services Management Staff Meetings	The Director of Safety and Training and other leadership within First Transit's Executive Management Staff, meet together on a monthly basis with the Manager of Paratransit and Minibus as well as other leadership within Contract Services to review and discuss updates from each department. These topics include but are not limited to: • Accidents & Injuries • Hazard mitigation strategies • Training activities • Policy & Procedures • Committee meetings • Contract management • Project updates • KPI goals
First Transit's Safety Solution Team (SST) Meeting	First Transit's Safety Solution Team is a joint labor-management committee that is comprised of an equal number of employee representatives and management representatives, compliant with the Bipartisan Infrastructure Law, § 5329(d)(5). The Bipartisan Infrastructure Law requires the Safety Committee to approve an agency's Agency Safety Plan (ASP) and any updates to the ASP. This approval must occur before the agency's Board of Directors approves the ASP or update. Frontline employee representatives are selected by the labor organization(s) that represents the plurality of the agency's frontline workforce employed by the agency or a contractor, to the extent labor organizations represent the frontline workforce. The Safety Committee also is responsible for, at a minimum: (1) identifying and recommending risk-based mitigations or strategies necessary to reduce the likelihood and severity of consequences identified through the agency's safety risk assessment; (2) identifying mitigations or strategies that may be ineffective, inappropriate, or were not implemented as intended; and (3) identifying safety deficiencies for purposes of continuous improvement. First Transit's Safety Solution Team meets on the 2nd Thursday of each month. The team representatives are from Maintenance, Safety, Trainer, Operations Departments, Road Supervisors, Call Center, drivers and General Manager. The purpose of the SST is to: create, improve, promote and maintain a heightened safety culture within the organization; inform, educate and influence employees through awareness campaigns and training activities

	designed to prevent and reduce accidents and injuries; and to provide a forum for employees to actively participate in safety programs that address and resolve safety issues in a timely manner.
First Transit's Claims Review Meetings	First Transit Local and Regional team meet on a monthly basis. Topics include but are not limited to: • Open & recently closed claims • Workers comp claims • Litigation updates • Hazard mitigation strategies • Training activities • Policy & Procedures • Review trends • Create resolutions • Create action plans
Regional Safety Meetings	First Transit Management meets with First Transit Regional Managers on a monthly basis. Topics include but are not limited to: • Open claims • Workers comp claims • Hazard mitigation strategies • Training activities • Policy & Procedures • Review trends and resolutions • Touch Points

Employee Safety Reporting Program

Describe the process and protections for employees to report safety conditions to senior management. Describe employee behaviors that may result in disciplinary action (and therefore, are excluded from protection).

First Transit is committed to conducting business with honesty and integrity. Employees are encouraged to speak up and raise questions and concerns promptly about any situation that may violate our safety protocols, policies and procedures, the laws, rules, and regulations that govern our business operations.

Employees are expected to tell others when witnessing unsafe work practices or conditions. When employees are not comfortable discussing these unsafe conditions with fellow employees, they are encouraged to discuss the situation with management or report it in writing.



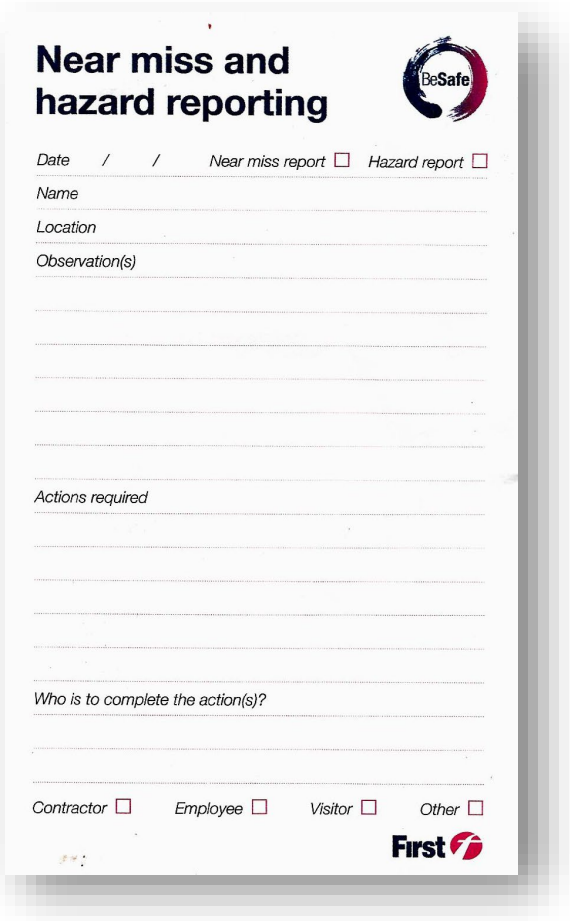
However, where the matter is more serious, or the employee feels that management has not addressed the concern, or they are not comfortable reporting to their immediate manager, they can report it to the next level manager, or the Region Safety Manager or Human Resources Manager. Employees may also directly file a written or verbal complaint by calling the confidential Ethics and Compliance Toll-free Hotline at 1.877.3CALLFG, (1.877.322.5534); contacting the Hotline intake site at ethicsfirst.ethicspoint.com; or emailing Compliance@firstgroup.com.

Retaliation against anyone who, in good faith, reports observations of unsafe or illegal activities; or who cooperates in any investigation of such report, is strictly prohibited and is not tolerated, regardless of the outcome of the complaint.

In other words, employees are protected for speaking up in good faith under this Policy. Any manager, or co-worker who retaliates against a complaining employee or anyone involved in an investigation of a complaint is subject to discipline and/or termination.

Managers are charged with assuring that they and their staff comply with the whistleblower protections and that no retaliation occurs because of a reported safety related issue.

Reporting Options


Near miss and hazard reporting

BeSafe

Date / / Near miss report ☐ Hazard report ☐

Name

Location

Observation(s)

Actions required

Who is to complete the action(s)?

Contractor ☐ Employee ☐ Visitor ☐ Other ☐

First

Near Miss and Hazard Reporting

In the interest of employee and passenger safety, each First Transit employee is issued a **"Near Miss and Hazard Reporting"** pad for documenting and reporting safety, route, and security concerns; and is encouraged to report any near miss incidents and hazards.

If an employee is involved in a near miss or determines something they see to be a hazard, we ask for their help in reporting the event so we all may learn the lessons from it and perhaps prevent a collision or injury from occurring in the future.

Near miss: An event you witnessed where no harm was caused, but there was the potential to cause injury or ill health; a dangerous occurrence

Hazard: Anything that may cause harm in the near future

If the safety or security hazard requires immediate attention, dispatch is notified immediately. If immediate attention is not required, the employee is encouraged to submit the information to management by the end of their workday. Our managers then initiate conversations with employees about their observations of both safe and unsafe behaviors.

The employee's contribution to the cause of the injury or collision is considered in disciplinary action, up to and including termination. If after analysis it has been determined that the incident resulted from an overt decision, disciplinary action is indicated. If not, then the appropriate counseling and/or training is indicated.

SOP #806 – Near Miss & Hazard Reporting describes the reporting process

Threatening or Suspicious Activity

First Transit encourages anyone who sees, hears, or learns of any conduct or statement that seems threatening or suspicious, and/or any weapons on company premises or in company vehicles, to immediately report such conduct or statement, either to his/her Supervisor or Manager, to the Human Resources Department, FirstGroup America Security, and/or to the confidential Ethics and Compliance Hotline at 1.877.3CALLFG, (1.877.322.5534), contact the Hotline intake site at ethicsfirst.ethicspoint.com, or email Compliance@firstgroup.com.

If there is an immediate risk or imminent threat of violence, serious harm, or life-threatening conduct, employees should immediately call 911, local police, or other law enforcement.

Open-Door Policy

A workplace where employees are treated with respect and one that is responsive to their concerns is important to each of us. At First Transit, we recognize that employees may have suggestions for improving our workplace, as well as complaints about the workplace. We feel that the most satisfactory solution to a job-related problem or concern is usually reached through a prompt discussion with an employee's manager. Each employee is encouraged to do so.

If the matter cannot be resolved with one's immediate manager, the employee may:

- Speak with their Location General Manager or Region Safety Manager who will attempt to facilitate a solution.
- If an employee is unable to resolve the matter through the management chain of command in their location, the employee may choose to speak directly to anyone in division management or Human Resources.

First Transit's Open-Door Policy also allows employees to voice their concerns anonymously.

- If an employee would like to submit an anonymous concern, they may contact the Ethics and Compliance Toll-free Hotline at 1.877.3CALLFG, (1.877.322.5534), contacting the Hotline intake site at ethicsfirst.ethicspoint.com, or emailing Compliance@firstgroup.com.

This Open-Door Policy applies to every employee not covered by a collective bargaining agreement. It also extends to contractors and subcontractors.

In situations involving discrimination or harassment, employees should follow the Complaint Procedure described in the Discrimination, Harassment and Retaliation Reporting Procedure section of their First Transit Employee Handbook without fear of reprisal and should not follow this Open-Door Policy complaint process.

In situations requiring immediate attention, an employee may bypass the chain of command, which begins with his or her manager, and contact any level of management or Human Resources directly, without fear of reprisal, and without the need to follow this Open-Door Policy complaint process.

- This may be done in person, by direct contact, phone call, letter, or email message or by utilizing the Ethics and Compliance Hotline. The Ethics and Compliance Hotline can be reached by calling 1.877.3CALLFG, (1.877.322.5534) or emailing Compliance@firstgroup.com.

Accidents/Incidents

First Transit finds accidents and incidents to be a very serious matter and a valuable learning opportunity to improve safety. **SOP #700 – Accident & Safety Data Acquisition and Reporting**, and the supporting **SOP's, 700a – Auto and General Liability Claim Form; 700b – Courtesy Card; 700c – Operator Incident Report**; ensure that the appropriate actions happen at the scene for the safety and security of First Transit passengers and employees; and that the appropriate data is collected to evaluate the incident, determine preventability and any other causal or contributing factors; and develop actions to limit or eliminate the possibility of the incident occurring in the future.

Accidents

Operators are to report all accidents and collisions to Dispatch immediately upon occurrence. When reporting to Dispatch, the employee must state that he or she is reporting an accident and then answer any questions asked by Dispatch.

Additionally, **SOP #700c – Operator Incident Report** and **SOP #700a – Auto & General Liability Claim Form**, must be completed by the Operator involved and location management for accidents, possible claims of accidents, damage to equipment, injury and possible injury not later than one hour after completion of shift on the day of occurrence. Any vehicle defects that may have contributed to an accident shall be included in the report. To help ensure that this deadline is met, employees are paid to complete the form.

Employees who fail to report an accident may be subject to disciplinary action up to and including termination.

Employees must provide transit management with any additional accident information immediately upon request.

Incidents

Incidents with passengers involving slips and falls on or near the vehicle, fights, police action, or removal of a passenger, must be reported to Dispatch immediately; and require a **SOP #700a – Auto & General Liability Claim Form** to be completed by management before going off duty for the workday.

All other incidents and occurrences out of the norm, no matter how slight, are to be reported to Dispatch upon return to the yard.

The following are examples of incidents that must be reported:

- Broken or cracked windows from unknown causes,
- Cut seats,
- Service delays,
- Passing up passengers,
- Insufficient or excessive running time in schedule,
- Overloads, etc.

If in doubt, immediately contact Dispatch.

Operators Witnessing an Accident shall notify Dispatch immediately, even though their vehicle may not be involved.

Required Courtesy Cards

In the event of an accident or an incident, Operators must distribute **SOP #700b – Courtesy Cards** then retrieve as many as possible from passengers and persons in the immediate area of the accident or incident who may have witnessed the event.

Duty to Report Wrongdoing

First Transit is committed to investigating all good faith claims of wrongdoing so that corrective action may be taken. To that purpose, First Transit encourages any employee, contractor or vendor to report wrongdoing or illegal acts to location management so long as they are not believed to be involved in the fraud, waste or abuse being reported. Management within First Transit ensures the matter is reported to Group Security and First Transit will investigate and take appropriate steps to correct the wrongdoing or potential violation.

Alternatively, reports may be made anonymously using the FGA Ethics & Compliance line at 1.877.3CALLFG, (1.877.322.5534) or by emailing Compliance@firstgroup.com. You may also contact the Healthcare Compliance Officer directly.

Self-Reporting

Self-reporting is also encouraged. Anyone who reports his/her own violation will receive due consideration regarding disciplinary action that may be taken.

Duty to Report Law Enforcement Actions

Employees are required to report any arrests, indictments or convictions to their immediate manager or Human Resources immediately, but no later than prior to the next scheduled work shift, to the extent permitted by applicable law. If the circumstances and the offense charged, in our judgment, present a potential risk to the safety and/or security of our customers, employees, premises and/or property, such events may result in disciplinary or other appropriate action to the extent permitted by applicable law.

Operators and safety sensitive employees are required to report all Driving Under the Influence (DUI) or Driving While Intoxicated (DWI) related charges, vehicular collisions, and any moving violation citations received in any vehicle immediately if possible, but no later than prior to their next scheduled work shift, consistent with applicable law.

Possible Disciplinary Actions

First Transit uses a tiered approach to determine possible disciplinary actions. Infractions that lead to disciplinary action are categorized into four categories;

- Class 1 – Dischargeable Offenses, the most serious and unacceptable behavior
- Class 2 – Serious violations of the First Transit performance code
- Class 3 – Secondary violations of the First Transit performance code
- Class 4 – Lesser violations of the First Transit performance code that may result in disciplinary action depending on the circumstances or repeated violations

Applying Disciplinary Actions

Although employment may be terminated at-will by either the employee or First Transit at any time in accordance with applicable law, without following any formal system of discipline or warning, First Transit may exercise discretion to utilize forms of discipline that are less severe than termination.

Whenever an employee is subject to discipline, the employee's work record, including violations occurring in the relevant time period, is reviewed before determining penalty. The chart below describes how disciplinary actions are applied.

Class of Infraction	Discharge	Suspension	Written Warning
1	1st Offense	----------	----------
2	2nd Offense*	1st Offense	----------
3	3rd Offense*	2nd Offense*	1st Offense
4	4th Offense*	3rd Offense*	1st & 2nd Offense*

*Within 12 months of first offense, 36 months for safety

Additionally, First Transit may use the following criteria to determine discipline specific to any type of traffic violation or preventable accident.

Major Offenses	Action
One violation	Discharge

Serious Violations	Action
One violation	Written warning
Two violations within any 36-month period	Discharge

Moving Violations	Action
Two violations within any 36-month period	Three-day Suspension
Three violations within any 36-month period	Discharge
Two violations within any 12-month period	Discharge

Preventable Vehicle Accidents	Action
One preventable accident	Written warning
Two preventable accidents within any 36-month period	Five-day Suspension
Three preventable accidents within any 36-month period	Discharge
Two preventable accidents within any 12-month period	Discharge

Details of First Transit's reporting requirements, infractions of company policy, and disciplinary actions that may be taken are described in more detail in the **First Transit Employee Handbook.**

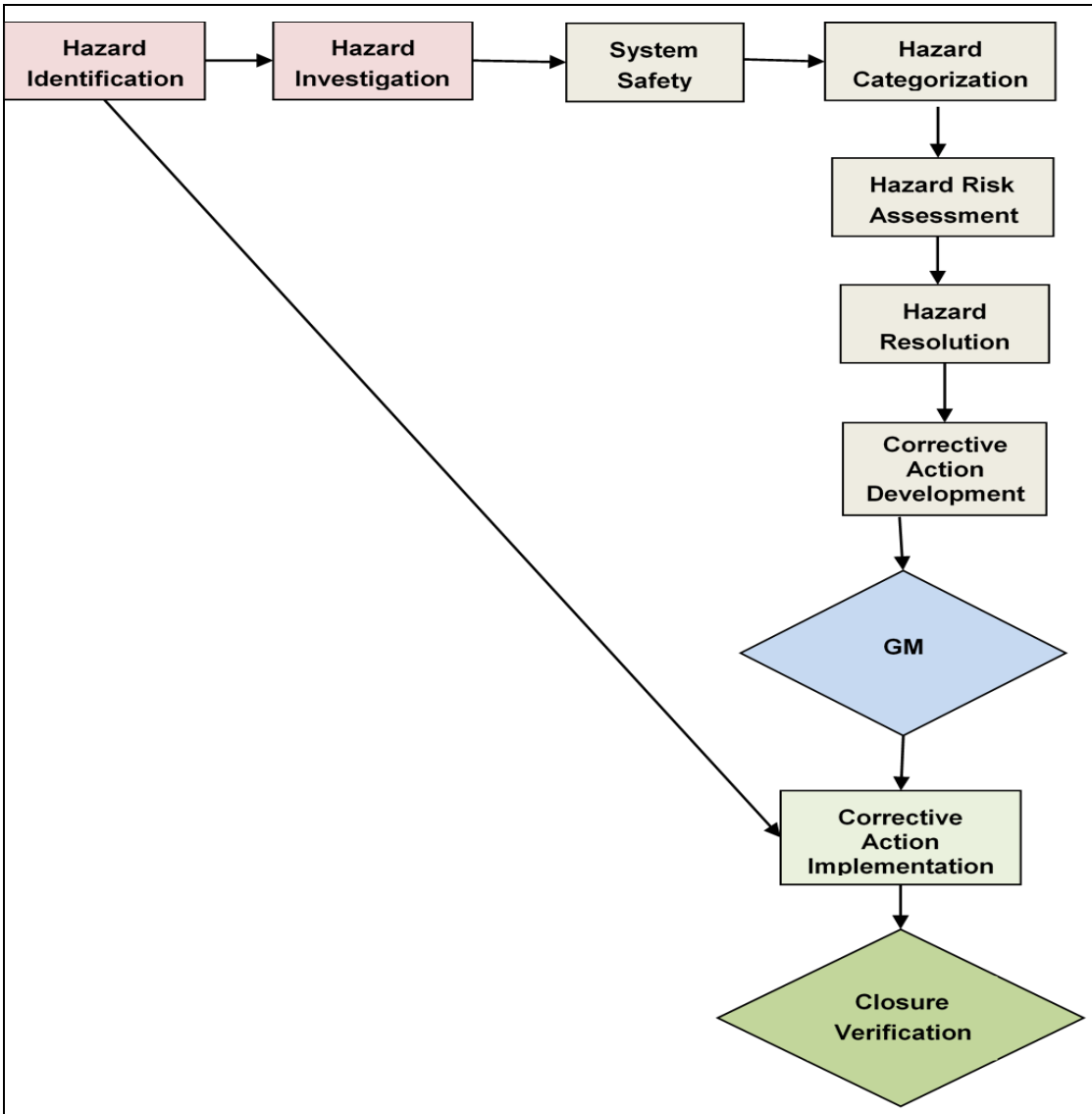
5. Safety Risk Management

Safety Risk Management Process

Describe the Safety Risk Management process, including:

- *Safety Hazard Identification: The methods or processes to identify hazards and consequences of the hazards*
- *Safety Risk Assessment: The methods or processes to assess the safety risks associated with identified safety hazards*
- *Safety Risk Mitigation: The methods or processes to identify mitigations or strategies necessary as a result of safety risk assessment*

Safety management is at the core of everything done at First Transit. All employees are responsible for performing their jobs in a safe manner, which includes identifying safety risks and participating in developing and implementing effective mitigation techniques. The process for managing hazards, from identification through corrective action and closure, is illustrated by the following flowchart.



As described earlier, a corporate structure exists to address all safety concerns. To ensure safety at the local levels, each location is required to form a Safety Solutions Team (SST), Accident Review Committee (ARC), and a Local Client Liaison Committee. To ensure consistency at each location, **SOP's #803; #803a; #803b Safety Solutions Team**, and **SOP #702 – Accident Review Committee** describe the procedures which are to be followed in creating and operating a Safety Solutions Team and Accident Review Committee.

These groups are responsible for reviewing safety related accidents and incidents to determine culpability; identify the causes associated with each event; and develop mitigation measures to reduce the risk of the events occurring in the future. Having these groups at each location provides a way for employees to report safety risks in a timely manner and to teams that understand the conditions associated with each specific location. Additionally, the opportunity exists for more timely, appropriate, and effective mitigation measures.

Several tools are used by the Region Safety Managers, Region Safety Directors and the Senior Director of Safety to monitor the local risks and risk management. Among them are Safety Data Reports which outline the monthly and Year to Date safety performance statistics. Also used is a Target & Goal Worksheet to track and analyze the data collected and to target reactive and proactive performance improvement measures.

Safety Hazard Identification

This process is a vital component in First Transit's efforts to reduce safety risks and improve overall delivery of service. Safety Hazard Identification data from internal sources such as employee reporting, customer feedback, maintenance records; and external sources such as the Federal Transit Administration and local oversight authority is used to implement immediate corrective actions and to proactively identify hazards and potential consequences before they cause future accidents or incidents.

The objective of hazard identification is to identify those conditions that can cause an accident or create an unsafe condition and determine possible consequences if the unsafe condition is not corrected. First Transit routinely analyzes records from our operation and external sources as they become available to identify accident causation based on history. Current traffic conditions are periodically analyzed, and management inspection of established prevention processes are routinely performed.

First Transit also takes an additional proactive step with its **SOP #208 – Safety Validation of Change** to identify hazards and consequences **PRIOR** to implementing any changes to operations.

First Transit relies on employees to assist in the hazard identification and resolution process. Working with the location safety personnel and through a structured process, employees help:

- Identify Critical Factors in Mitigation of safety risk
- Develop and Recommend an Action Plan
- Implement Action Plan
- Measure Performance Against Safety Objectives
- Monitor the Process
- Modify the Process
- Secure Outside Assistance (when needed)
- Audit for Compliance

Several tools exist for hazard identification. Among them are:

- **SOP #802 and #802a - Daily Safety & Health Walkthrough and Checklist**
  - A routine safety and health check walkthrough to promptly identify hazardous conditions at our facilities and notify employees of the hazards identified and mitigation measures to help protect them from personal injury.
- **SOP #804 - Positive Check-In Procedures & Reasonable Suspicion**
  - Positive Check-In procedures are to ensure our operators reporting to work are fit-for-duty.
- **SOP #900 – Facility Hazard Recognition Manual**
  - This Hazard Recognition Manual is intended to be a tool for recognizing potential hazards that may be present at First Transit facilities. Although it does not represent all conditions that could exist, the photos and narrative provide:
    - A reference guide for conducting safety inspections at a facility, and
    - A training document to educate and train employees to conduct effective safety inspections.
- **Vehicle Maintenance Risk Assessment**
  - All employees who perform maintenance and repairs to vehicles within transit centers and bus yards or on road calls complete a risk assessment using **SOP #503a – Vehicle Maintenance Risk Assessment Form** prior to performing any work on a vehicle.
  - The Risk Assessment process, **SOP #503 – Vehicle Maintenance Risk Assessment**, requires employees about to perform a maintenance task to confirm they possess the training, skills, knowledge, abilities, tools, and equipment to safely perform the task at hand. The assessment includes determining the following.
    - Are You Properly Trained to Perform the Task?
    - If Task Requires Lifting, Are Lifts Secured, Are Jack Stands Used Correctly?
    - Are You Wearing the Appropriate Personal Protective Equipment (PPE)?

        - Have You Performed the Proper Lock-Out/Tag-Out (LOTO) procedures?
        - Are You Aware of the Potential Risks of Performing this Repair?
    - If the answer is “NO” to any of the above assessments the technician is to immediately contact their manager.
- **Pre-Survey Job Hazard Analysis**
    - Prior to beginning a job hazard analysis, a pre-survey of the working conditions, using **SOP #503b – Pre-Survey Job Hazard Analysis Form**, under which the job is performed is conducted to evaluate the general conditions. A few of the potential hazards being considered include:
        1. Are there tripping hazards in the job vicinity?
        2. Is the lighting adequate for work conditions?
        3. Are there explosive hazards associated with the job?
        4. Are there electrical hazards associated with the job?
        5. Are tools associated with the job in good condition?
        6. Is the noise level excessive (below 85-dba)?
- **Facility Parking Risk Management Assessment**
    - Inadequate turning areas, blind corners, uneven walking surfaces can all cause collisions or employee injury in parking areas. **SOP #501 - Facility Parking Risk Assessment** will help identify and prevent these types of collisions for both buses and personal vehicles.
    - The Location Manager must ensure compliance with all provisions of this SOP.
    - The risk of each facility is assessed as follows:
        - Annually
        - Unscheduled – Whenever a significant vehicle collision or a pedestrian strike occurs in the bus yard or on company premises
        - Start-up locations – Before operating out of the new location.
        - **SOP #501a – Facility Parking Risk Assessment Guide**, and
        - **SOP #501b – Facility Parking Risk Assessment Form** are tools to help with this assessment.

Accident/Incident Hazard Identification

Procedures exist and are followed regarding resolution of accidents and incidents and capturing data. Although this information is used proactively, First Transit takes advantage of these opportunities to determine which, if any hazards existed that may have contributed to the accident or incident and develop mitigation measures to reduce the risk of a recurrence.

There are five (5) main areas reviewed in this Hazard Identification process:

1. **Environment**
    a. Weather
    b. Road Surface Condition
    c. Visibility
2. **Transit Service Characteristics and Agency Policies**
    a. Incentives for Safe Driving
    b. Equipment Maintenance Policies
    c. Stop Intervals
    d. Route Design
    e. Driver Scheduling
    f. Passenger Demand Schedules
3. **Operator**
    a. Experience
    b. Physical Ability
    c. Personality
    d. Psychological Condition

e. Physical Condition

4. **Road Layout**
   a. Width
   b. Speed Limit
   c. Geometric Design
   d. Traffic Volume
   e. Capacity
   f. Parking
   g. Adjacent Lane Use
   h. Street Lighting
   i. Pedestrian Volume

5. **Hazard Identification – Accident Prevention/Resolution**
   1st: Identify the Hazard
   2nd: Remove the Hazard
   3rd: When the Hazard cannot be removed, Train for the Hazard as a “known condition”

- **On-Board Video Technology**
  - **SOP #704 – On-Board Video Technology** provides a summary of the on-board video system and Company standards that all First Transit employees must follow when operating a company or customer vehicle equipped with onboard video technology.
  - This technology is a valuable resource and another tool that helps First Transit instill positive driving behaviors by providing opportunities to view recorded driving events, driver history and company trends.
  - The goal of this in-cab camera technology is to proactively identify unsafe behaviors and improve those identified behaviors through coaching, retraining and, if necessary, disciplinary measures in accordance with the provisions of the Employee Handbook and applicable Collective Bargaining Agreements.

Information learned from this identification process is used to improve training and reduce or eliminate the underlying causes.

Safety Risk Assessment

Once the hazard has been identified, they are categorized into the following severity levels. The categorization of hazards is consistent with risk-based criteria for severity; it reflects the principle that not all hazards pose an equal amount of risk to personal safety.

Category 1 – Catastrophic: operating conditions are such that human error, design deficiencies, element, subsystem or component failure, or procedural deficiencies may cause death or major system loss.

Category 2 – Critical: operating conditions are such that human error, subsystem or component failure, or procedural deficiencies may cause severe injury, severe occupational illness, or major system damage.

Category 3 – Marginal: operating conditions are such that they may result in minor injury, occupational illness or system damage and are such that human error, subsystem or component failures.

Category 4 – Negligible: operating conditions are such that human error, subsystem, or component failure or procedural deficiencies will result in less than minor injury, occupational illness, or system damage.

The next step in assessing the hazard is to determine the probability of it occurring. Probability is determined based on the analysis of transit system operating experience, evaluation of First Transit safety data, the analysis of reliability and failure data, and/or from historical safety data from other passenger bus systems. The following chart describes the probability categories.

Likelihood Per FTA review guidance of Occurrence of a Hazard			
Description	**Probability Level**	**Frequency for Specific Item**	**Selected Frequency for Fleet or Inventory**
Frequent	A	Likely to occur frequently	Continuously experienced
Probable	B	Will occur several times in the life of the item	Will occur frequently in the system
Occasional	C	Likely to occur sometime in the life of an item	Will occur several times in the system
Remote	D	Unlikely but possible to occur in life of an item	Unlikely but can be expected to occur
Improbable	E	So unlikely, it can be assumed occurrence may not be experienced	Unlikely to occur but possible

Identified hazards are placed into the following Risk Assessment Matrix to enable the decision makers to understand the amount of risk involved in accepting the hazard in relation to the cost (schedule, cost, operations) to reduce the hazard to an acceptable level.

Hazard Frequency	**Severity Category 1**	**Severity Category 2**	**Severity Category 3**	**Severity Category 4**
Frequent (A)	1A	2A	3A	4A
Probable (B)	1B	2B	3B	4B
Occasional (C)	1C	2C	3C	4C
Remote (D)	1D	2D	3D	4D
Improbable (E)	1E	2E	3E	4E

Based on company policy and the analysis of historical data, MTS and First Transit has made the following determinations regarding risk acceptance.

Hazard Risk Index	**Criteria by Index**
1A, 1B, 1C, 2A, 2B, 3A	Unacceptable
1D, 2C, 2D, 3B, 3C	Undesirable (Management decision)
1E, 2E, 3D, 3E, 4A, 4B	Acceptable with Management Review
4C, 4D, 4E	Acceptable without Management Review

Safety Risk Mitigation

Mitigation Determination

After the assessment has been completed, the follow-up actions will be implemented as follows.

- **Unacceptable:** The hazard must be mitigated in the most expedient manner possible before normal service may resume. Interim corrective action may be required to mitigate the hazard to an acceptable level while the permanent resolution is in development.
- **Undesirable:** A hazard at this level of risk must be mitigated unless the Location General Manager and Location Safety Manager issue a documented decision to manage the hazard until resources are available for full mitigation.
- **Acceptable with review:** The Location General Manager and Location Safety Manager must determine if the hazard is adequately controlled or mitigated as is.
- **Acceptable without review:** The hazard does not need to be reviewed by the management team and does not require further mitigation or control.

Hazard Resolution

Safety hazard resolution or mitigation consists of reducing the risk to the lowest practical level. Not all safety risks can be eliminated completely. Resolution of hazards will utilize the results of the risk assessment process. The objectives of the hazard resolution process are to:

1. Identify areas where hazard resolution requires a change in the system design, installation of safety devices or development of special procedures.
2. Verify that hazards involving interfaces between two or more systems have been resolved.
3. Verify that the resolution of a hazard in one system does not create a new hazard in another system.

The SST, who was identified earlier in this plan as the team responsible for local safety review, uses the following methodologies to assure that system safety objectives are implemented through design and operations, and hazards are eliminated or controlled:

1. Design to eliminate or minimize hazard severity. To the extent permitted by cost and practicality, identified hazards are eliminated or controlled by the design of equipment, systems and facilities
2. Hazards that cannot reasonably be eliminated or controlled through design are controlled to the extent practicable to an acceptable level through the use of fixed, automatic, or other protective safety design features or devices.
3. Provisions are made for periodic functional checks of safety devices and training for employees to ensure that system safety objectives are met.
4. When design and safety devices cannot reasonably nor effectively eliminate or control an identified hazard, safety warning devices are used (to the extent practicable) to alert persons to the hazard.
5. Where it is impossible to reasonably eliminate or adequately control a hazard through design or the use of safety and warning devices, procedures and training are used to control the hazard.
6. Precautionary notation is standardized, and safety-critical issues require training and certification of personnel.

Mitigation of Safety Risk Management and Tracking

Resolution of identified hazards are managed by the Location General Manager and/or the Location Safety Manager. The mitigation of safety risk process is managed through the **"Safety Toolbox"**, which is an online tool used by management, from Road Supervisors to Executive Management, to record the occurrence of safety-related events, review safety critical data, and track corrective actions as necessary.

The Safety Toolbox is a powerful tool to help understand the work area's safety environment. This includes:

- Understanding and improving observations of safety critical behaviors
- Reviewing recorded debriefs to ensure that the "BeSafe" process is in place and working.
- Reviewing findings from BeSafe tours and determine if tasks/actions have been closed out

The Safety Toolbox includes information regarding:

- BeSafe (BeSafe Debriefs, BeSafe Tours, BeSafe Touchpoints)
  - Debrief meetings conducted in order to assure quality.
  - Safety Critical Behavior is the main focus of touchpoints; and shared and discussed during debrief meetings.
- Contacts (e.g. Near Misses, Hazard reports, Commendation, Safety Issue)
  - **Near Misses.** Reporting an event that occurred and could have caused injury.
  - **Hazard Reports.** Reporting an event that occurred and could have caused injury.
  - **Commendation.** A report of commendable safety actions/conduct performed by a colleague within the business.
  - **Safety issues.** A report on any safety issue that has a specific cause – i.e. maintenance, housekeeping, environment and behavior etc.
- Safety Leadership Activities (e.g. Participate in safety meetings, risk assessment, section observation)
  - **Participation in a Safety meeting.** Actively leading or participating in the location in-service safety meeting.
  - **Intersection observation or risk assessment.** Risk assessment or driver observations conducted at nearby intersections, and delivery of positive reinforcement or coaching as indicated.
  - **Rail section observation or risk assessment.** Risk assessment or driver observations conducted at rail crossing(s), and delivery of positive reinforcement or coaching as indicated.
  - **Planned general inspections.** A systematic inspection where a location is forewarned.
  - **High interest driver.** A report of a driver's performance that has indicated a level of risk taking through observations, review scores, and skills evaluations.

Additional documentation, such as corrective action plans, are developed for those hazards requiring complex and multifaceted resolutions.
First Transit will provide MTS a monthly update on Safety Performance Goals, Collision and Passenger Injury Trends and updates of any Critical Events occurring during the month.

6. Safety Assurance

Safety Performance Monitoring and Measurement

Describe activities to monitor operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended.

As discussed in Section 1 of this plan, First Transit employs a Resident Management Team at each operation location. This team consists of a Location General Manager and a Location Safety Manager, who oversee the safety of the operation.

Additionally, each location employs Street Supervisors, Dispatchers, and Instructors; all of whom are responsible for oversight of the daily operations and training. All safety risks identified are reported to the Location General Manager and Location Safety Manager. Any risks that can be addressed immediately are corrected but still reported. Each location also establishes a Safety Solutions Team (SST), described in Section 5: Safety Risk Management of this plan, which uses the following methodologies to ensure a proactive approach to safety at each location.

- Routine hazard management
- Accident and incident investigation
- Safety data collection and analysis
- Routine internal safety audits
- Facility, equipment, systems and vehicle inspections

- Routine proficiency checks for all vehicle operators and maintenance employees
- Compliance evaluations including onsite inspections
- Regularly communicating safety and hazard data to all employees

A higher level of oversight is conducted by Region management, which includes the Region Safety Manager, Region Safety Director, Region Maintenance Director, and the Region Vice President. From this level, any identified risks and mitigations are shared with other Region local operations as a proactive means to reduce risks.

The last "local level" review comes from the Vice President of Safety and the Vice President of Maintenance. These are corporate level positions that share the identified risks and mitigations throughout the organization as a proactive means to reduce risks. Additionally, the Vice President of Safety and Vice President of Maintenance assist executive level management in using this information to impact operational and budget decisions.

Describe activities to conduct investigations of safety events to identify causal factors.

First Transit has a "zero" tolerance for preventable injuries and collisions. Elimination of preventable injuries and collisions is our number one goal.

Any injury, collision or incident that occurs is investigated to determine preventability or non-preventability. Investigations include all instances in which:

- a vehicle was damaged
- a vehicle leaves the traveled roadway
- a passenger is injured or
- an employee is injured

SOP #700-Accident & Safety Data Acquisition describes the data collection process including

- Defining the Event & What to Do
- Accidents – Defining the Accident
- "Five Cardinal Rules That Apply to an Accident"
- Operator Responsibility
- Dispatcher on Duty Accident Investigation Responsibility

SOP #700 also describes the Operators and the Dispatchers responsibilities for protecting the customers and managing the scene.

The groups described in **SOP #702 – Accident Review Committee** (ARC), and **SOP #803 – Safety Solutions Team** (SST), review the data collected to determine if the accident/incident was preventable or non-preventable,(ARC); and identify measures to reduce the risk of the accident/incident occurring in the future (SST).

Describe activities to monitor information reported through internal safety reporting programs.

The Location Safety Manager (LSM) and/or Location General Manager (LGM) routinely reviews all location safety and hazard data, which includes searching for repetitive events that might have safety implications. When accident/incident reports and statistics indicate repetitive accidents/incidents, the LSM and LGM investigate to determine the root cause.

The following chart describes how the hazard data flows and is monitored by First Transit; from each operating location, to Region management, to corporate and parent company management.

Information Collected Daily	Location	Third Party Data Collected	Risk Dept	Safety Dept	Location	MTS
Collisions/ Injuries/ Workers Comp	Incident Occurs, claim report created, then sent to Third Party Data Collector via website, phone, fax.	Report received from Location.	Information from Third Party Data Collector created as weekly report then sent to Region Safety.	Weekly reports are reviewed and distributed for weekly management oversight conference calls.	Review data with Senior Region Leadership during weekly teleconference.	MTS Administrative Staff overseeing the First Transit Contract meeting with First Transit Management on a monthly basis; MTS Administrative Staff will provide a summary of the data to the COO on a monthly basis; The CSO is responsible for reporting applicable required information to the National Transit Database (NTD) on a monthly basis
	Risk Dept	**Shared Services Dept**	**Region Safety Managers**	**Shared Safety Services Dept**		
Collisions/ Injuries/ Workers Comp	Send all raw risk data gathered from weekly reports to the Shared Safety Services Dept.	Reorganizes raw data regionally then distributes to Region Safety Dept.	Review period data and distribute to locations.	Develops company, region, and location specific performance measures and distributes through Target & Goal Spreadsheet.		

Period Data Analysis								
	Shared Services Dept	**UK**	**Safety Dept**	**First Group Executive Safety Committee (ESC)**	**First Group Safety Council**	**First Group America Safety Council**	**Performance Review Management (PRM)**	**Safety Advisory Committee**
Collisions/ Injuries/ Workers Comp	Final reports sent to UK and Directors of Safety for each business group.	Processes data; analyzes; creates reports; categorizes risk factors; and gathers commentary from First Group companies for trend analysis.	Processes data; analyzes; creates reports; categorizes risk factors; and creates commentary for trend analysis.	This committee consists of President, COO, and Safety Vice President of each operating group. Discussions include safety performance, trend analysis, program oversight.	This committee consists of Vice Presidents of Safety for all operating divisions. Discussions include safety performance, trend analysis, and safety oversight.	This committee consists of Safety Senior Directors and Safety Vice Presidents. Discussions include safety performance, trend analysis, best practices, and program oversight.	This review consists of Senior Region Vice Presidents, Region Vice Presidents, Region Directors of Operations, and Region Safety Managers. Discussions include regions safety performance.	This committee consists of Location General Managers, Region Directors of Operations, and Region and Local Safety Managers. Discussions include review of policy and procedures, training, and safety awareness.

Management of Change

Describe the process for identifying and assessing changes that may introduce new hazards or impact safety performance.

First Transit employs a proactive process, **SOP #208 – Safety Validation of Change**, that addresses the procedures to be followed to evaluate the risk of any changes proposed at all levels of the organization. The overall purpose of this process is to provide assurance that any proposed changes which impact operations will not increase safety risk; or where additional risk is identified, that controls are put in place **prior to the changes being implemented**.

Changes to organizational structure; the nature or extent of operations; or to facility or equipment assets; as well as mergers and acquisitions of new businesses are proactively managed through this process to avoid introducing or increasing safety risks.

- The resources required to complete the validation process, in terms of people, finance and materials is included in this validation process.
- The allocation of responsibilities considers the competence of the individuals that are required to carry out the safety validation roles.
- All employees who may be affected by the proposed changes are consulted as part of the process.

The extent and scope of safety validation applied to any change proposal is proportional to the risks (safety, operational, and other risks) associated with its introduction. *(For example, a major change, such as a reorganization of Region Executive roles and responsibilities or start-up of a large new bus operation, requires a more rigorous safety validation than a minor change.)*

In the case of smaller, less complex or well understood changes, the safety validation of change process may be implemented as part of normal operations, using existing organizational arrangements and meeting structures to deliver the required level of assurance.

The process is generally described in the following chart.

Safety Validation of Change Process			
Main Steps	Key Activities	Checklists & Guidance	Completed By
1. Identify Proposal for Change	• Raise change proposal (including Capital Expenditure Approval) • Inform relevant functional Director(s) and Manager(s)	• Complete **SOP #208a – Safety Validation of Change Form**, Section A1	Change proposer

2. Determine Classification of Change Significance	• Classify level of safety validation required • Ensure the extent and scope of validation is proportional to the level of risk	• Complete **SOP #208a – Safety Validation of Change Form**, Section A2	**Category A:** Group Safety Director **Category B:** Divisional head of Safety **Category C:** Location head of Safety
3. Allocate Roles & Responsibilities	• Formally allocate change sponsor and change authorizer • Identify other required resources and roles for consultation	• Complete **SOP #208a – Safety Validation of Change Form**, Section A3	Change proposer (with guidance)
Submit Change Proposal Form			Change proposer
Decide whether safety validation should proceed			Change proposer
4. Prepare Safety Validation of Change Case	• Prepare safety validation documentation • Complete risk assessment of proposed change • Submit for review • Revise and finalize documentation	• Complete risk assessment and document findings • Complete Safety Validation of Change as described in **SOP #208 – Safety Validation of Change** • Complete **SOP #208a – Safety Validation of Change Form**	Change proposer
Submit Safety Validation Checklist with supporting documentation			Change proposer
Approve and Implement, or Reject Change			Change authorizer (or delegated representative)
5. Monitoring and Review	• Monitor implementation of change and safety performance • Review performance process	• Check compliance as part of Region Safety Monitoring • Review effectiveness of the process as part of Region oversight	Location Safety Manager Corporate Safety Management Vice President of Safety - First Transit

Changes proposed at the Corporate level typically have an impact on the Region and Local levels. To ensure the risks associated with any change consider all levels of the organization, each level must complete **SOP #208 – Safety Validation of Change** as part of the process to ensure specific safety concerns have been identified and addressed.

Similarly, changes proposed at the Region level will typically have an impact on the Local level. Consequently, the Local level must also complete **SOP #208 – Safety Validation of Change** as part of the process to ensure specific safety concerns have been identified and addressed.

Additional responsibilities in the Safety Validation of Change process include:

- The Region Safety Management team provides safety expertise/support to those carrying out the safety validation.
- The Senior Director of Safety:
    - Reviews and approves each Region's safety validation of change process
    - Decides on the level of safety validation required (consulting with other functional heads as necessary) for Category A changes
    - Is consulted on any Category B change proposal
    - Provides safety expertise/support to Region Safety Managers and Vice President of Safety – First Transit during safety validation activities as required.
    - Provides safety expertise/support to those carrying out the safety validation for Category A changes.

An electronic log of all proposed changes, whether approved or not, are maintained by the Region Safety Director.

Communication of changes to policies/procedures regarding safety issues comes from Executive Leadership. This information is then carried down through the Vice President of Safety – First Transit, Senior Director of Safety, Region Safety Directors, Region Safety Managers. Location General Managers, Location Safety Managers, and employees. Notification to the client is communicated through the Location General Manager.

Continuous Improvement

Describe the process for assessing safety performance. Describe the process for developing and carrying out plans to address identified safety deficiencies.

The process described previously in this section for monitoring safety data incorporates continuous improvement. As safety risk is identified, then reported on, a determination is made as to whether the risk can be mitigated immediately or requires more time and resources.

Risk mitigations that can address the safety concerns immediately are carried out but still reported. The reporting of these concerns includes the mitigation steps that have been taken. Monitoring of the risk continues to ensure that the mitigation strategy is effective.

Section 5 of this plan, Safety Risk Management, describes the risk assessment and mitigation procedures used that determine how to proceed with improvement strategies that require more time and resources. Which improvement strategies to implement for longer term issues is based on severity and probability of risk occurrence. Additionally, safety hazard identification data is used to implement immediate corrective actions and to proactively identify hazards before they cause future accidents or incidents.

The objective of hazard identification is to distinguish those conditions that can cause an accident or create an unsafe condition. First Transit routinely analyzes records from our operation to identify accident causation

based on history. Current traffic conditions are periodically analyzed, and management inspections of established prevention processes are routinely performed.

The Risk/Safety Data Flow Chart previously described in this section, illustrates how this information is shared throughout the organization.

7. Safety Promotion

Competencies and Training

Describe the safety training program for all agency employees and contractors directly responsible for safety.

The education and training process at First Transit is a highly regimented and professionally developed program built around a curriculum featuring learning opportunities in two major domains:

- Knowledge (education)
- Skills (training)

Various delivery mechanisms such as classroom, multimedia presentations, closed course, observation and behind-the-wheel skills building are used to support the learning process. Learning is evaluated through written quizzes, driving tests and customer service skills evaluations.

Driver Instructors

Successful new operator training starts with selecting and certifying good instructors.

1. **Classroom Instructor:**

   The classroom instructor is responsible for facilitating the classroom portion of New Operator Training. Classroom training requires the development of lesson plans.

2. **Behind-the-Wheel Instructor:**

   The Behind-the-Wheel (BTW) Instructor is responsible for conducting closed course exercises and behind the wheel instruction. The New Operator Training program consists of instructional DVDs, which are accompanied by facilitator guides and participant study guides. The BTW Instructor uses the Operator Proficiency Workbook to document each trainee's progress.

   **New Instructor Candidates can obtain certification as both a Classroom Instructor and a Behind-the-Wheel Instructor.*

3. **Master:**

   The Master Instructor, along with the Regional Director of Safety and Region Safety Manager(s), is responsible for training the Safety Supervisors. The Master Instructor is also responsible for the certification programs for Behind-the-Wheel and Classroom Instructors and the ongoing Train-the-Trainer workshops.

Training the Instructor is a process by which a Certified Instructor works with the selected New Instructor Candidate. During this time, the Certified Instructor conducts a review of all state laws, First Transit policies and procedures, local policies, and client-specified programs and requirements.

The Certified Instructor also provides a review of the Behind-the-Wheel Manual, Classroom Manual, and all First Transit video-based courses.

In addition to the above training, the New Instructor Candidate must complete the Instructor Development Curriculum, which includes the following three self-directed courses:

1. How to Train
2. Coaching the Adult Learner

3. Learning Basics

There are three types of Instructor Certification:

1. Temporary
2. Certified
3. Master

1. Temporary (Silver)

Temporary certificates are issued at the local level. A temporary certificate is issued to a New Instructor Candidate upon successful completion of the New Instructor training program at his or her location, conducted by a certified trainer at that location. Certificates are issued throughout the year prior to the annual Train-the-Trainer program.

Temporary certificates are valid for one year, and one year only, from the date of issue. Temporary certification is accompanied by silver achievement emblems for Classroom, BTW or both.

To continue in the program, a New Instructor must obtain Gold Certification.

2. Certified (Gold)

The Certified Instructor certificate is issued to a New Instructor who has successfully completed the annual Train-the-Trainer program, conducted by a Master Trainer. The annual Train-the-Trainer program combines all elements of the temporary certification, with the exception of the classroom evaluation. At the annual Train-the-Trainer program, Classroom Instructor Candidates are required to develop a lesson plan and give a presentation.

Prior to attending the annual Train-the-Trainer program, all New Instructors must complete the “Safety Leadership” course and pass the final exam with a grade of 90% or above.

The Senior Director of Safety is the only person authorized to approve and issue a Certified Instructor certificate with gold achievement emblems for Classroom, BTW, or both.

3. Master

The Master Instructor Certification program ensures that First Transit Policies and Procedures are correctly implemented throughout the company.

Master Instructor Certification is required for all area safety managers and above.

The Master Instructor:

- Provides support to the Location General Manager and the Region Safety Manager,
- Is involved with training new Safety and Training Supervisors, and re-training current Safety and Training Supervisors if required,
- Conducts the annual Train-the-Trainer program for BTW and Classroom Instructor Certification
- Conducts Safety and Training audits in the region and reports the findings to the Region Safety Manager, if required.

Employee Training

Training employees to assess risks and recognize and avoid hazards in the workplace is critical to the overall safety of the workplace. Every First Transit employee is trained in **“BeSafe”** and **“Safe Work Methods”**, which are described later in this section.

“BeSafe” is our company-wide approach to safety management. This program takes our safety performance to the next level through behavioral change. “BeSafe” is inclusive, collaborative and focuses on recognizing and acknowledging safe behavior and actions through positive reinforcement such as debriefs, tours, and touchpoints. All employees are trained in the principles of “BeSafe”

The “BeSafe” concept is described in the following brochure.



Near miss and hazard reporting

In the interest of keeping you, your colleagues and our passengers safe, it's your responsibility to report any near miss incidents and hazards.

Please record these in the 'Near miss and hazard reporting' pad and hand it in to the nearest supervisor / manager.

Near miss:
An event you witnessed where no harm was caused, but there was the potential to cause injury or ill health – a dangerous occurrence.

Hazard:
Anything that may cause harm in the near future.

Personal emergency details

In an emergency, please be aware of the following:

Name

Home Tel. No.

Mobile Tel. No.

Emergency contact No.

Blood type

Allergies

Medical condition(s)

Please inform your HR department of any medical conditions that might prevent you from doing your job safely.

Work environment

A positive, safe environment is important to our passengers, our staff and our business.

If you are concerned about anything at work, aware of a security issue or have suspicions about anything from bullying to fraud – report it.

If it is an emergency
Tell the police. Then, tell your manager.

If it is not an emergency
Tell your manager or Group Security, or use the confidential hotline or ethics portal.

Confidential hotline
UK 0808 234 5291
North America 877-322-5534
Greyhound Operations Support Center 800-487-6996
Panama 000-000-000-0000
India 000-000-000-0000

Make a report
www.ethicsfirst.ethicspoint.com

BeSafe

My Handbook

First

Be Safe What is it?

Be Safe is our Group-wide safety commitment, taking our safety performance to the next level through behavioural change.

It builds on our compliance with existing policies and safety management systems. Be Safe, whilst not ignoring unsafe acts, harnesses the power achieved where positive behaviour and habits are shown and recognised.

Be Safe is inclusive, collaborative and focuses on recognising and acknowledging safe behaviour and actions through positive reinforcement.

Be Safe Our objectives

Be Safe has three clear objectives:

1. To make progress on our way to “Zero Harm”.
2. To make safety a personal core value through behaviour change.
3. To improve business performance.

Everyone in FirstGroup takes ownership for safety in the workplace and encourages colleagues to do the same.

We have a personal stake in safety for ourselves, our colleagues and our customers.

By sharing the right attitude, skills and knowledge we will create the best safety environment to achieve our objectives and Be Safe.

Be Safe principles

These principles all support our Group value of being Dedicated to Safety.

Knowledge
Our greatest efforts will be directed at the key safety behaviours that will help reduce incidents.

Recognition
Whilst not ignoring actions that undermine safety, the focus will be on acknowledging colleagues “doing it right” and positively reinforcing these actions.

Openness
Regular positive coaching interactions, or “touchpoints” will take place and communication at “debriefs” will be open and honest.

Learning
Reporting of incidents and near misses will be seen as learning opportunities to continuously improve work place safety.

Courage
We are all empowered to accept responsibility for our own safety and the safety of our colleagues and customers. If you assess something to be unsafe, you should have the courage to stop and find a safer way of doing things.

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First Transit’s **“Safe Work Methods”** is designed to educate employees on how to identify conditions and actions posing risks to their well-being and that of their coworkers. This training is to be used:

1. In training new hire employees
2. In leading supervisors in identifying root causes of workplace injuries
3. In retraining injured workers so that re-occurrences are avoided
4. To supplement First Transit’s First Occupational Rehabilitation Management (F.O.R.M.) light duty and return to work management program, in controlling workers compensation losses

The “Safe Work Methods” training curriculum includes:

- **New Hire Training**
  New hire training is designed to educate the new employee to the hazards commonly found in the transportation environments including in vehicle maintenance shops, bus yards, fuel islands, wash bays, and office environments. The program also makes employees aware of injuries that can result from physical activities such as entering and exiting vehicles, assisting persons with disabilities, and handling mobility devices.
  - PPE program including requirements for appropriate
    - Safety eyewear
    - Safety footwear

        - Safety hand wear
        - Hi-Vis vests
        - Disposal contaminated materials
    - Risk Assessment and Injury Avoidance
        - Walking & Climbing
        - Lifting, Carrying, Holding, and Lowering Objects
        - Pushing, Pulling, & Twisting
        - Burns, Scalds
        - Exposed Fluids, Chemicals, Smoke
        - Cuts, Punctures, Abrasions, Lacerations
        - Mobility Device Lifts/Ramps

1. Requirements for Operator Training

Applicants are required to successfully complete a comprehensive training program prior to transporting passengers. Trainees are continually evaluated and tested throughout the training program. Trainees who do not demonstrate the required level of proficiency are provided additional training or are removed from training. The Operator training program combines instructor-led sessions, video instruction, facilitated discussion, and opportunities for the trainees to practice what they have learned. Training topics include:

Classroom Training
The first part of Operator training at First Transit, classroom training, begins the process of instilling the safety culture into each Operator. Helping the student Operators understand the importance of keeping themselves and each passenger safe; and their responsibilities in maintaining a safe environment, is a theme integrated throughout.

- **Unit 1 - Introduction**
    - Welcome and Introduction
    - Title VI Civil Rights Act 1964
    - Employee Handbook
    - BeSafe - Making Safety Personal
    - Hazardous Communication
    - Bloodborne Pathogens
- **Unit II - Fundamentals**
    - Safe Work Methods
    - Basics of Safety
    - Managing Emergencies
    - Security Awareness
    - Map Reading
    - Communication Devices
    - Navigation and Fare Policies
    - Smith System
- **Unit III - The Operator**
    - Drug and Alcohol Awareness
    - Distracted Driving
    - Fatigue and Sleep Apnea Awareness
- **Unit IV - Transporting Passengers with Disabilities**
    - Transporting Passengers with Disabilities
    - Interacting with Passengers
    - Diffusing Conflict
    - Passenger Care While Loading and Unloading
    - Mobility Aids and Devices
- **Unit V - Driving Fundamentals**
    - Driving Fundamentals I
    - Driving Fundamentals II

- Roadway Types
- Railroad Crossings

Behind-the-Wheel Training
Behind-the-Wheel training is conducted in three phases. Since most people coming to work as a Bus Operator have not been exposed to driving the types of vehicle used at First Transit, the first part of behind-the-wheel training takes place on a closed course. This provides the opportunity for the Instructors to evaluate the skill levels of each employee; and gives each employee the opportunity to make and learn from their mistakes in a safe environment.

The next phase of Behind-the-Wheel training takes place on the road, but in a controlled manner. During the road phase of the training, each student Operator works one-on-one with a First Transit Instructor. The road work begins with the basics; intersections, service stops, and backing. The next advanced stage of the road work addresses roadways, highway driving, and continues the instruction on intersections and service stops. The “Smith Driving System” principles are incorporated throughout the entire Behind-the-Wheel training phase.

- **Closed Course (Group Work)**
  - Vehicle Orientation
    - Pre-Trip Inspection
    - Seat Adjustment
    - Mirror Adjustment
    - Braking, Accelerating, and Transmission
    - Wheelchair Securement
  - Reference Points
    - Lane Position
    - Right Side / Left Side
    - Backing Point
    - Forward Stop
    - Pivot Points
    - Turning Points
  - Vehicle Control
    - Straight in Lane
    - Left Turn
    - Right Turn
    - Lane Changing - Moving Right or Left
- **One on One Instruction Behind the Wheel**
  - **Basic Road Work**
    - “Smith System”
    - Intersections
    - Service Stops
    - Backing
- **Advanced Road Work**
  - “Smith System” Commentary Driving
  - Roadways
  - Expressway / Highway Driving
  - Intersections
  - Service Stops
- **Final Evaluation**
  Upon completion of the training program, before an Operator can be placed into service, they must successfully demonstrate their mastery of the skills and practices learned during the training program.
- **Cadet Training**
  Once a new Operator has been placed into service there is period of observation where an experienced Operator, Instructor, or Supervisor periodically rides-along to ensure the skills

learned in training have successfully transferred to providing service. This includes the securement and transportation of a person with a disability.

2. Requirements for Maintenance Training

Maintenance personnel are trained in shop safety, OSHA standards, and vehicle maintenance, in addition to receiving training in driving techniques and safety. Trainees are continually evaluated and tested throughout the training program. Trainees who do not demonstrate the required level of proficiency are provided additional training or are removed from training.

Maintenance training includes:

- Introduction to First Transit policies & procedures
- Injury prevention and risk assessment
- Substance Abuse Policy
- Defensive Driving
- “Smith System”
- NTI - Security Awareness Warning Signs
- Shop Safety Handbook
- Maintenance Lift Safety
- Driver Vehicle Inspection (DVI) Procedures
- SafeWork Methods
- Wheel Torque Specifications
- Workplace Violence
- OSHA (R-T-K / SDS / PPE Training)
- De-escalation training

Servicer Training Program

All servicers complete a comprehensive training program. This program includes passing a written and behind the wheel test for a commercial driver license. Other major topics covered in the training program include: Code of Safe Practices, LPG fueling procedures, electric bus charging, bloodborne pathogen control program, Spill Prevention & Control Program (SPCC), Maintenance Dept. policies & procedures.

Servicer refresher training includes but is not limited to:

- Weekly during toolbox safety flyers
- SPCC annual refresher training
- Hazard Communication Training
- Behind the wheel evaluations
- Preventable Accident remediation

Mechanic

All mechanics hired are to be ASE certified with two years of maintenance work experience, mechanics also receive the training program outlined in the servicer training program. Mechanics also receive Hazardous Waste Operations and Emergency Response (HAZWOPER) training as well as forklift certification before operating.

Mechanic refresher training includes but is not limited to:

- Weekly during toolbox safety flyers
- SPCC annual refresher training
- Hazard Communication Training

- Forklift recertification every 3 years (if operating)
- Behind the wheel evaluations
- Preventable accident remediation

Foreman and Maintenance Managers

Foreman and Maintenance Managers training includes but is not limited to:

- Drug and Alcohol
- Harassment Prevention
- Management Development
- Toolbox training sessions
- SPCC
- HAZWOPER
- Forklift recertification
- Behind the wheel evaluations
- Preventable accident remediation

3. Requirements for Staff Training

Staff personnel are trained in Safety Leadership and "BeSafe" (described in item #1)

- **Safety Leadership**

  This is an interactive CD-ROM course consisting of 5 CD's and leaders guides which are designed to educate all levels of First Transit management on the behaviors surrounding accidents. Every level of management takes the course and successfully pass an online test, found on the Safety Resource Center (SRC), with a passing grade of 90% or better.

  The course outline is as follows:

  - Safety Leadership
    - Accidents
    - Behavior
    - Leadership
  - Supervisor Development
    - The Role of the Supervisor
    - Communication
    - Building Trust
    - Conflict Resolution
    - Performance Management
    - Decisions
- **Additional Safety Training**
  - Drug and Alcohol
  - Supervisor's Report of Reasonable Suspicion
  - Code of Conduct
  - Customer Service
  - De-escalation training
  - OSHA Requirements
  - Hazard Abatement FORM – CA Only
  - TSI – Introduction to Paratransit
  - TSI – Vehicle Operations
  - TSI – Managing Emergencies
  - TSI – Customer Relations

- SMS – First Transit Safety Policy
- SMS – First Be Safe Principles
- SMS – Be Safe
- SMS – Personal Protective Equipment
- SMS – Parking
- SMS – Personal Safety
- SMS – Risk Assessment
- SMS – Prevention of Workplace Violence

4. Requirements for Continuing Training and Evaluations

First Transit provides ongoing employee training and evaluations.

The objective of ongoing evaluations is met through a broad spectrum of regularly scheduled management activities including:

- road observations,
- ride along evaluations, and
- daily safety contacts.

Where evaluations and observations identify unsafe acts or conditions, retraining is provided to improve skill levels in accordance with corporate standards.

In addition to First Transit's formal employee training program, the following safety training is also conducted.

Safety Meetings

- Twelve (12) safety meetings are issued to the locations annually with required topics identified by the location and region safety management
- Each meeting is to be a minimum of one (1) hour in length unless otherwise required by state, client or local regulations
- A required topic along with a safety campaign including posters and DVD is sent to each location for presentation to all employees
- Attendance is a condition of employment and is mandatory for all Operators, Management, Operational staff, and Maintenance personnel. *(Unless stated otherwise in the CBA.)*
  - Failure to attend all meetings will result in disciplinary actions up to and including termination.
- Client/Contract requirements may require safety meetings to be conducted on a more frequent basis than the First Transit minimum standards

Retraining

First Transit has a "zero" tolerance for preventable injuries and collisions, elimination of preventable injuries and collisions is our number one goal.

An employee involved in a preventable injury or collision is placed on administrative leave pending completion of the investigation and completion of any required retraining.

Safety Communication

Describe processes and activities to communicate safety and safety performance information throughout the organization.

Safety Awareness Programs

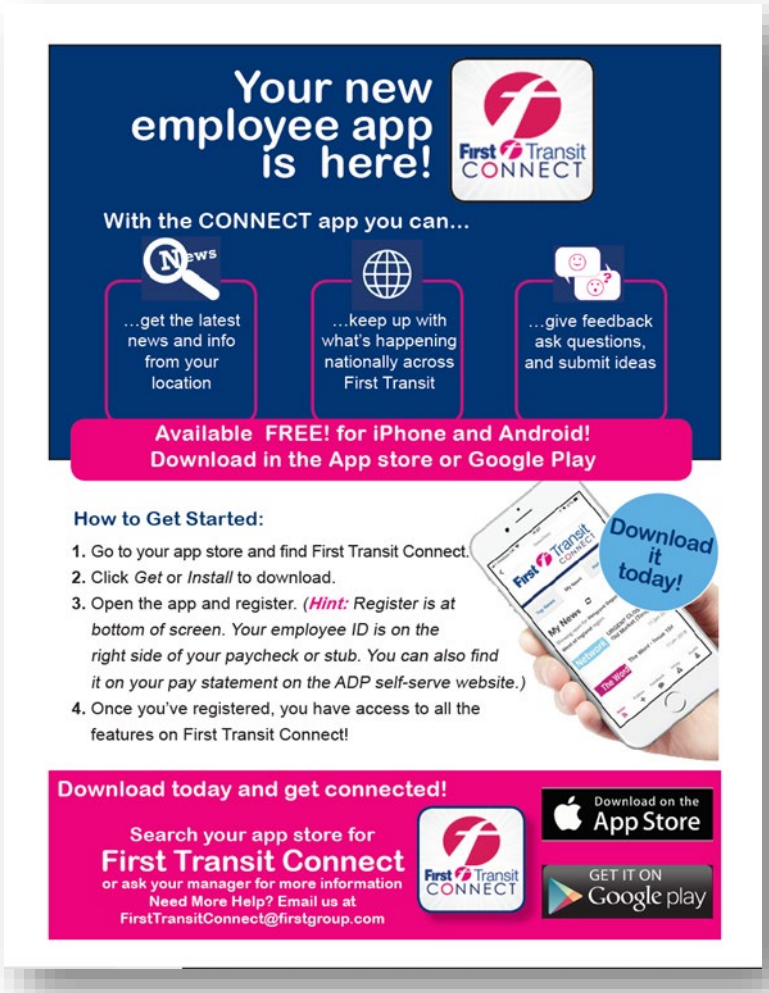
Establishing and maintaining a culture that demands safe behavior at all times is at the core of First Transit's safety plan. This is done, in part, by providing a regular flow of positive information and recognizing those who are performing safely.

This is where our **"BeSafe"** program provides the structure and foundation for communicating safety messages and inspiring safe job performance at all levels. "BeSafe" takes safety to a more personal level. It is a company-wide commitment to safety, with the objective of continuous improvement by making safety a personal goal and incorporating behavioral change as a mitigation measure.

"BeSafe" focuses on positive change through routine personal "touchpoints" and coaching interactions between front-line employees and management. To reinforce the touchpoints, discussions and feedback sessions are conducted as needed.

This program inspires safe behavior among employees at all levels by;

- Generating system-wide participation in safety issues through positive reinforcement
- Encouraging all employees to "take ownership" for safety results
- Communicating safety policies, procedures and processes
- Engaging executives and managers at all levels, encouraging their active participation in safety management and communication
- Sharing safety results at the individual, project, region and national levels by celebrating success stories
    - **Individual Motivators – Individual Achievement Awards:** The "cultural carrot" to help affect individual safety improvement through the use of personal recognition awards. Currently established safety awards for First Transit employees are:
        - Annual Safe Driver Awards
        - Safety Solutions Team Recognition
- **A Safety Leadership Group - The Safety Solution Team (SST):** Four to 10 location teammates dedicated to making safety "top-of-mind" by identifying and resolving safety issues.
    - <u>SST</u>
        - Review the safety concerns they have worked on and improvements that have been implemented
        - Record and distribute SST meeting minutes
    - <u>GM</u>
        - Review "Daily Safety & Health Walkthrough"
    - <u>GM and SST</u>
        - Recognize individuals who have earned years of safe driving
        - Pins and Certificates
        - Include bullets from SST Meeting minutes
- **A Communication Tool:** "First Transit Connect" employee app, a peer to peer safety communication tool offering safety tips, best practices, recognition, offering ideas on "What Works", Safety Happenings, and Safety Pep Rallies


Your new employee app is here!
First Transit CONNECT
With the CONNECT app you can...
...get the latest news and info from your location
...keep up with what's happening nationally across First Transit
...give feedback ask questions, and submit ideas
Available FREE! for iPhone and Android!
Download in the App store or Google Play
How to Get Started:
1. Go to your app store and find First Transit Connect.
2. Click Get or Install to download.
3. Open the app and register. (Hint: Register is at bottom of screen. Your employee ID is on the right side of your paycheck or stub. You can also find it on your pay statement on the ADP self-serve website.)
4. Once you've registered, you have access to all the features on First Transit Connect!
Download it today!
Download today and get connected!
Search your app store for
First Transit Connect
or ask your manager for more information
Need More Help? Email us at
FirstTransitConnect@firstgroup.com
Download on the App Store
GET IT ON Google play

Additional Information

Supporting Documentation

Include or reference documentation used to implement and carry out the Safety Plan that are not included elsewhere in this Plan.

Numerous standard operating procedures (SOP's), in addition to those mentioned in this plan, have been developed and incorporated into the operating practices at each First Transit location.

The SOP's have been designed to create operational consistency, increase awareness of risks and hazards, and provide easily duplicated processes for identifying and mitigating the risks associated with providing transit service. Some of those SOP's are as follows.

- High Interest Driver SOP's #206; #206a; #206b; #206c: #206d
- SOP #207 - Railroad Crossing Assessment
- SOP #502 – Sub-Contractors Working on Company Property
- Fire Prevention Plan SOP's #504; #504a; #504b; #504c; #504d
- Winter Safety – Snow Removal Action Plan SOP's #505; #505a; #505b; #505c
- Vehicle Fueling Spill Control SOP's #506; #506a; #506b; #506c; #506d
- SOP #507 - Pedestrian Visibility and Movement on Company Property
- SOP # 508 - Service Truck & Service Vehicle Visibility
- Emergency Action Plan SOP's #806; #806a; #806b; #806c; #806d
- First Transit Shop Safety Handbook
- Safety & Security Planning Manual
- MTS Infectious Disease Control and Prevention Plan

List of Acronyms Used in the Safety Plan

Acronym	Word or Phrase
ARC	Accident Review Committee
BTW	Behind-the-Wheel
DOT	Department of Transportation
DUI	Driving Under the Influence
DWI	Driving While Intoxicated
ESC	Executive Safety Committee
FGA	First Group America
F.O.R.M.	First Occupational Rehabilitation Management
FTA	Federal Transit Administration
HR	Human Resources
LGM	General Manager
LOTO	Lock-Out/Tag-Out
LSM	Location Safety Manager
MNT	Maintenance
OPS	Operations
OSHA	Occupational Safety & Health Administration
PPE	Personal Protective Equipment
PRM	Performance Review Management
SMS	Safety Management System
SOP	Standard Operating Procedure
SRC	Safety Resource Center
SST	Safety Solutions Team
UK	United Kingdom
VP	Vice President

Bus Safety Performance Assessment







National Safety Plan Number	BIL Risk Reduction Plan Number	Safety Performance Measure & Calculation Description	Rolling 3-Year Avg CY 23-25	CY 2026 Target
1a	1	**Major Events** = # of all safety and security major events as defined by the NTD	50.33	47
1b	2	**Major Event Rate** = # of major events/ VRM (per 100,000)	0.25	0.24
N/A	3	**Collisions** = # of all collisions reported to the NTD	43	42
1.1	4	**Collision Rate** = # of collisions/ VRM (per 100,000)	0.21	0.20
1.1.1	N/A	**Pedestrian Collision Rate** = # of all collisions "with a person," as defined by the NTD / VRM (per 100,000)	4.33	≤4.33
1.1.2	N/A	**Vehicular Collision Rate** = of all collisions "with a motor vehicle," as defined by the NTD / VRM (per 100,000)	37	≤37
2a	N/A	**Fatalities** - all fatalities as defined by the NTD	1	≤1
2b	N/A	**Fatality Rate** = # of fatalities as defined by the NTD / VRM (per 100,000)	0.005	≤0.005
2.1	N/A	**Transit Worker Fatality Rate** = # of transit worker fatalities as defined by the NTD / VRM (per 100,000)	0	≤0
3a	5	**Injuries** = # of all injuries as defined by the NTD	95	94
3b	6	**Injury Rate** =# of all injuries as defined by the NTD / VRM (per 100,000)	0.47	0.46
3.1	N/A	**Transit Worker Injury Rate** = # of all transit worker injuries as defined by the NTD / VRM (per 100,000)	0.01	≤0.01
4a	7	**Assaults on Transit Workers** = # of all assaults on transit workers as defined by the NTD*	*31.5	25
4b	8	**Rate of Assaults on Transit Workers** =# of all assaults on transit workers as defined by the NTD / VRM* (per 100,000)	*0.15	0.11
5	N/A	**System Reliability** = VRM / Major Mechanical System failures as defined by the NTD	5,610	≤5,610

* Not required until 3 years of reporting data submitted to NTD. Calculation used based on prior two years of reporting CY 24-25.

Bus Performance Measures

- Prior goal was to improve upon 3-year baseline (2018-2020)
- Bipartisan Infrastructure Law (BIL) changed to 3-year rolling average, CY 2022 - CY 2024
- Performance targets do not consider crimes, fault, or preventability
- All rates are based on vehicle revenue miles
- 24.2 million revenue miles travelled in CY 2025 for all bus modes

Performance Measure – Fatalities

Mode	Total			Rate		
	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	0	0.7	0	0	0.007	0
Fixed (Transdev)	0	0.3	2	0	0.003	0.017
Fixed Total	**0**	**1**	**2**	**0**	**0.005**	**0.010**
Paratransit	**0**	**0**	**0**	**0**	**0**	**0**

Fatality - Death confirmed within 30 days of the event (including suicides).

Rate per 100,000 vehicle revenue miles.

*Baseline total was aspirational goal.

Performance Measure – Major Events

Mode	Total			Rate		
	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	21.3	24.7	33	0.22	0.27	0.36
Fixed (Transdev)	18.3	22.7	27	0.17	0.21	0.23
Fixed Total	**39.7**	**47.3**	**60**	**0.19**	**0.24**	**0.29**
Paratransit	**2.7**	**2.7**	**2**	**0.07**	**0.09**	**0.06**

Major Event – Previously called “Safety Event.” Changed due to updated National Safety Plan.

All safety and security events defined by the NTD. Collisions that meet NTD thresholds for injuries, fatalities, property damage; vehicle towed.

Rate per 100,000 vehicle revenue miles.

Performance Measure – Injuries

Mode	Total			Rate		
	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	56.3	39	65	0.58	0.43	0.71
Fixed (Transdev)	57.3	46.7	56	0.52	0.43	0.48
Fixed Total	**113.7**	**85.7**	**121**	**0.55**	**0.43**	**0.58**
Paratransit	**2.7**	**5.3**	**10**	**0.07**	**0.18**	**0.29**

Injury - Any damage or harm to persons that requires immediate medical attention away from the scene because of a reportable event must be reported as an injury, whether or not the person appears to be injured.

Rate per 100,000 vehicle revenue miles.

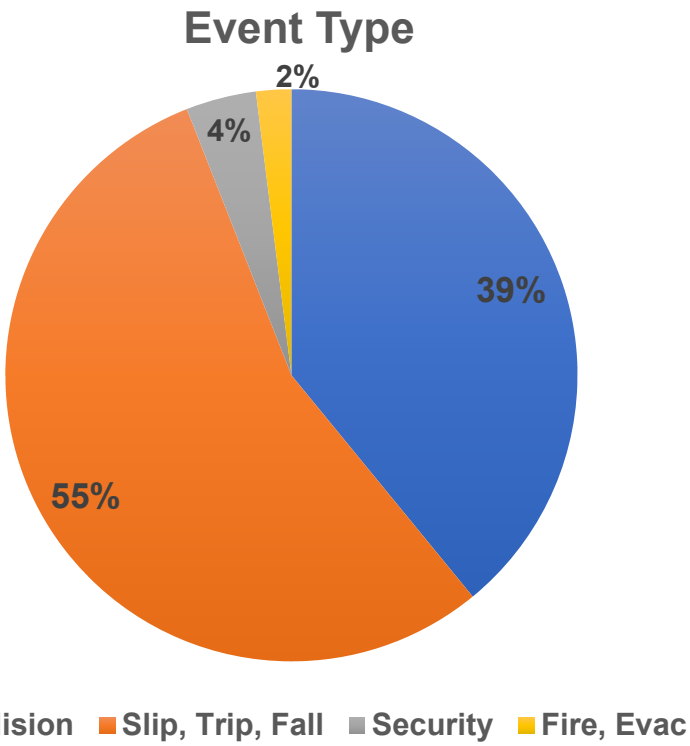
Performance Measure – System Reliability

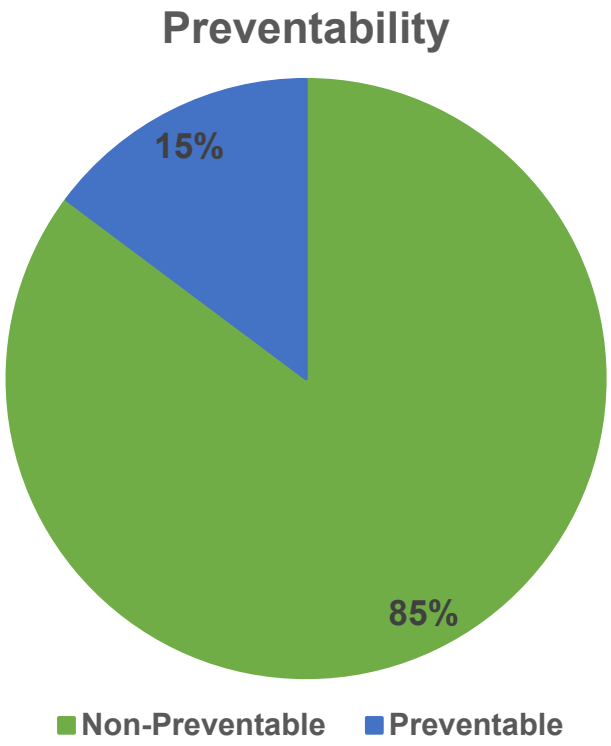
Mode	Rate		
	*Baseline CY 18 -20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	4,700	6,607	6,154
Fixed (Transdev)	6,000	5,647	4,902
Fixed Total	**5,600**	**6,045**	**5,383**
Paratransit	**32,000**	**47,002**	**58,545**

System Reliability - Distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures.

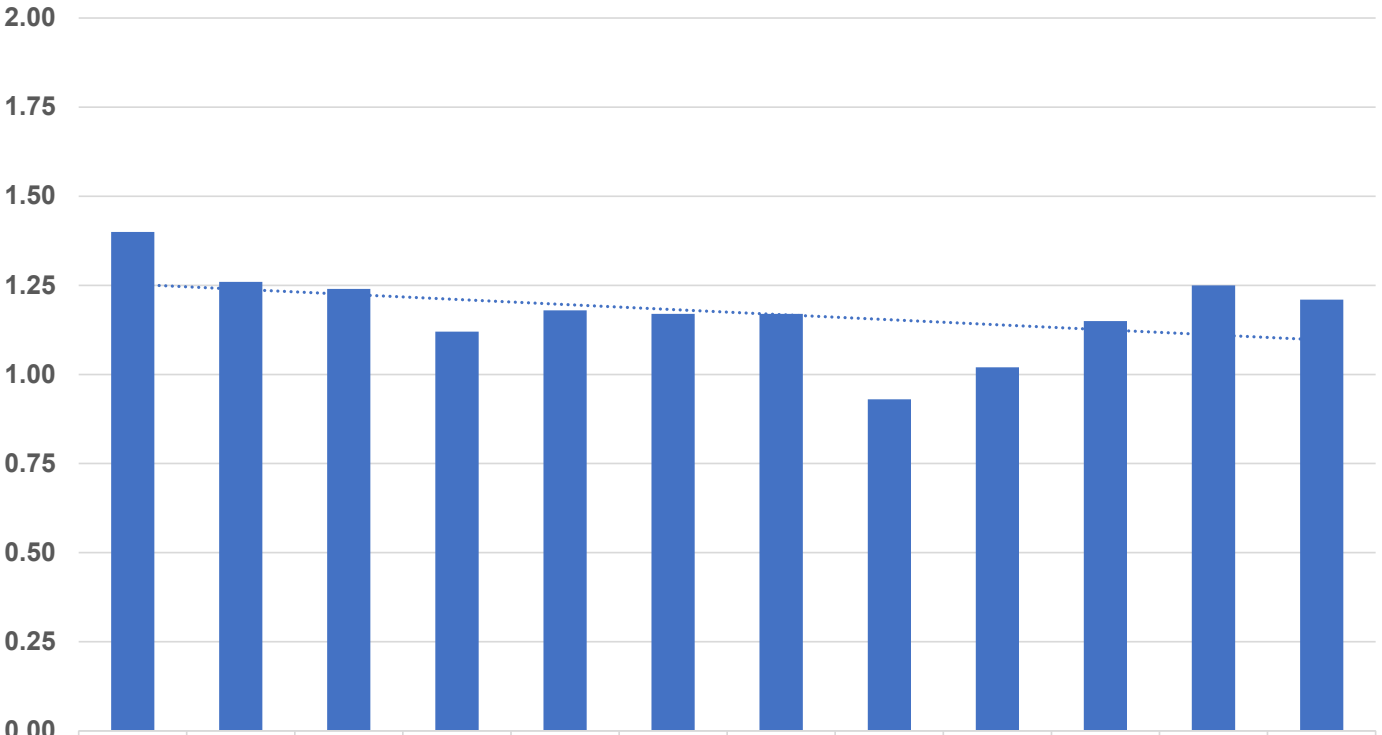
* Rounded to nearest hundred miles.

Bus Event Types & Preventability



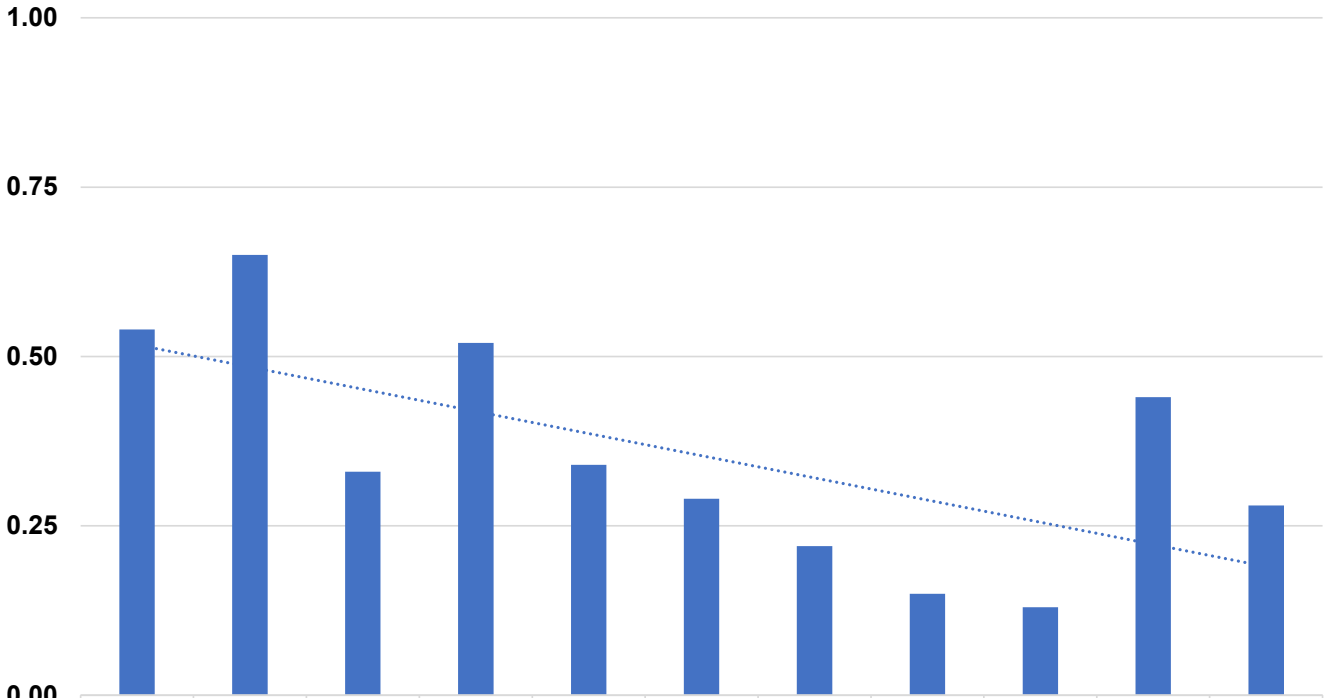


Fixed Route Preventable Accidents



	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Rate	1.4	1.26	1.24	1.12	1.18	1.17	1.17	0.93	1.02	1.15	1.25	1.21

Rapid Preventable Accidents



	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Rate	0.54	0.65	0.33	0.52	0.34	0.29	0.22	0.15	0.13	0.44	0.28

Metropolitan Transit System

PTASP Safety Risk Reduction Program



2025

Approved by MTS Board of Directors on 6/18/2026

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Purpose

The Bipartisan Infrastructure Law requires Section 5307 recipients that serve an urbanized area with a population of 200,000 or more to include in their Agency Safety Plan a safety risk reduction program or transit operations. These safety risk reduction programs aim to improve safety performance by reducing the number and rates of accidents, injuries, and assaults on transit workers, including:

- a reduction of vehicular and pedestrian accidents involving buses that includes measures to reduce visibility impairments for bus operators that contribute to accidents, including retrofits to buses in revenue service and specifications for future procurements that reduce visibility impairments; and
- the mitigation of assaults on transit workers, including the deployment of assault mitigation infrastructure and technology on buses, including barriers to restrict the unwanted entry of individuals and objects into the workstations of bus operators when a risk analysis performed by the transit agency's Safety Committee determines that such barriers or other measures would reduce assaults on transit workers and injuries to transit workers.

The Bipartisan Infrastructure Law directs that performance measures for a safety risk reduction program, required under 49 U.S.C. 5329(d)(4), be included in the National Safety Plan (49 U.S.C. 5329(b)(2)(A)). FTA identifies eight measures for the safety risk reduction program. The Safety Committee of applicable transit agencies will use these measures to set targets for the safety risk reduction program, as required by 49 U.S.C. 5329(d) and 49 CFR § 673.19(d)(2). Under the new Bipartisan Infrastructure Law requirements, the Safety Committee must establish these targets using a 3-year rolling average of the data the agency submits to the NTD.

Required Safety Risk Reduction Program Measures

Safety Risk Reduction Program Measure		Description
1	Major Events	This includes all safety and security major events as defined by the NTD.
2	Major Event Rate	This includes all safety and security major events as defined by the NTD, divided by VRM.
3	Collisions	This includes all collisions reported to the NTD.
4	Collision Rate	This includes all collisions reported to the NTD, divided by VRM.
5	Injuries	This includes all injuries as defined by the NTD.
6	Injury Rate	This includes all injuries as defined by the NTD, divided by VRM.
7	Assaults on Transit Workers	This includes all assaults on transit workers as defined by the NTD.
8	Rate of Assaults on Transit Workers	This includes all assaults on transit workers as defined by the NTD, divided by VRM.

Safety Risk Reduction Program Requirements (49 CFR 673.25)

Federal requirements of the risk reduction program are prescribed in 49 CFR 673 (d) Safety risk mitigation.

(1) A transit agency must establish methods or processes to identify safety risk mitigations or strategies necessary as a result of the transit agency's safety risk assessment to reduce the likelihood and severity of the potential consequences. For large urbanized area providers, these methods or processes must address the role of the transit agency's Safety Committee.

(2) A transit agency must consider, as a source for safety risk mitigation:

(i) Guidance provided by an oversight authority, if applicable, and FTA; and

(ii) Guidelines to prevent or control exposure to infectious diseases provided by the CDC or a State health authority.

(3) When identifying safety risk mitigations for the safety risk reduction program related to vehicular and pedestrian safety events involving transit vehicles, including to address a missed safety performance target set by the Safety Committee under § 673.19(d)(2), each large urbanized area provider and its Safety Committee must consider mitigations to reduce visibility impairments for transit vehicle operators that contribute to accidents, including retrofits to vehicles in revenue service and specifications for future procurements that reduce visibility impairments.

(4) When identifying safety risk mitigations for the safety risk reduction program related to assaults on transit workers, including to address a missed safety performance target set by the Safety Committee under § 673.19(d)(2), each large urbanized area provider and its Safety Committee must consider deployment of assault mitigation infrastructure and technology on transit vehicles and in transit facilities. Assault mitigation infrastructure and technology includes barriers to restrict the unwanted entry of individuals and objects into the workstations of bus operators.

(5) When a large urbanized area provider's Safety Committee, as part of the transit agency's safety risk reduction program, identifies and recommends under § 673.19(c)(6) safety risk mitigations, including mitigations relating to vehicular and pedestrian safety events involving transit vehicles or assaults on transit workers, based on a safety risk assessment conducted under § 673.25(c), the transit agency must include or incorporate by reference these safety risk mitigations in its ASP pursuant to § 673.11(a)(7)(iv).

(6) When a large urbanized area provider's Safety Committee recommends a safety risk mitigation unrelated to the safety risk reduction program, and the Accountable Executive decides not to implement the safety risk mitigation, the Accountable Executive must prepare a written statement explaining their decision, pursuant to recordkeeping requirements at § 673.31. The Accountable Executive must submit and present this explanation to the transit agency's Safety Committee and Board of Directors or equivalent entity. (a) Each large urbanized area provider must establish a safety risk reduction program for transit operations to improve safety performance by reducing the number and rate of assaults on transit workers.

Safety Risk Assessment

A safety risk assessment is a safety management system (SMS) process that evaluates hazards by assessing the severity and likelihood of the hazard and then assigning a risk rating. Once a risk rating has been determined, potential mitigations are identified, implemented, and evaluated.

Table 1 Severity

Severity		
Description	**Category**	**Criteria (worst likely credible outcome)**
Catastrophic	**1**	Result in death, or permanent total disability.
Critical	**2**	Could likely result in permanent partial disability, injuries or occupational illness that result in hospitalization.
Moderate	**3**	Could likely result in injury or occupational illness resulting in immediate medical attention away from the scene or resulting in one or more lost workday(s).
Marginal	4	Could likely result in injury or occupational illness resulting in no immediate medical attention away from the scene or lost workdays.
Negligible	5	Could likely not result in injury or occupational illness, not resulting in any lost work time.

Table 2 Likelihood

Likelihood		
Description	**Level**	**Specific Individual Item (Example of Frequency)**
Continuous	**A**	Likely to occur continuously. (Daily)
Frequent	**B**	Likely to occur frequently. (Weekly)
Probable	**C**	Likely to occur regularly. (Monthly)
Occasional	**D**	Likely to occur occasionally. (Yearly)
Remote	**E**	Unlikely but reasonable or possible to occur. (Decade)

Table 3 Hazard Assessment Matrix

Hazard Assessment Matrix					
	1 - Catastrophic	**2 - Critical**	**3 - Moderate**	**4 - Marginal**	**5 - Negligible**
A - Continuous	**1A**	**2A**	**3A**	**4A**	**5A**
B - Frequent	**1B**	**2B**	**3B**	**4B**	**5B**
C - Probable	**1C**	**2C**	**3C**	**4C**	**5C**
D - Occasional	**1D**	**2D**	**3D**	**4D**	**5D**
E - Remote	**1E**	**2E**	**3E**	**4E**	**5E**

Table 4 Acceptability Levels

Acceptability Levels	
High	**Unacceptable**
Serious	**Undesirable** with management decision
Medium	**Acceptable** with review by management
Low	**Acceptable** without review

NTD Reportable Assaults on Transit Workers					
Month	**Major Assaults**	**Non-Major Physical Assaults on Operators**	**Non-Major Non-Physical Assaults on Operators**	**Non-Major Physical Assaults on Other Transit Workers**	**Non-Major Non-Physical Assaults on Other Transit Workers**
Apr 2023		1			
May 2023		2			
Jun 2023		3		1	
Jul 2023		2			
Aug 2023		2			
Sep 2023		2			
Oct 2023		0			
Nov 2023		0			
Dec 2023		0			
Jan 2024		0			
Feb 2024		2			
Mar 2024		1			
Apr 2024		0	1		
May 2024		2			
Jun 2024		3			
Jul 2024		0			
Aug 2024	1	0			
Sep 2024		1			
Oct 2024		1			
Totals	**1**	**21**	**1**	**1**	**0**

To conduct the safety risk assessment, agency staff including the safety committee reviewed data submitted to the National Transit Database (NTD). The NTD began collecting increased transit worker assault data beginning in April 2023. The NTD reportable transit worker assaults show that bus operators experienced all of the assaults except one. The assaults were generally physical and the majority did not result in injury or require immediate medical attention. There was one major assault that resulted in immediate medical attention and hospitalization. Based on the data, the safety committee assigned a risk rating of "2C- Undesirable with management decision."

Identified Safety Risk Mitigations of Transit Worker Assaults

The following mitigations have been identified as strategies to be used to reduce the likelihood and/or severity of transit worker assaults:

- Laws Protecting Transit Workers
- Training
- Policies & Procedures
- Equipment
- Security Staff
- Assault Tracking & Reporting
- Employee Support

Bipartisan Infrastructure Law (BIL) Definitions

Transit Worker

Any employee, contractor, or volunteer working on behalf of the transit agency.

Assault

A circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with, disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

State Laws Protecting Transit Workers

CA Pen. Code § 241.3:

When an assault (an unlawful attempt, coupled with a present ability, to commit a violent injury on the person of another) is committed against any person on the property of, or on a motor vehicle of, a public transportation provider, the offense shall be punished by a fine not to exceed two thousand dollars ($2,000), or by imprisonment in a county jail not to exceed one year, or by both the fine and imprisonment. As used in this section, "public transportation provider" means a publicly or privately owned entity that operates, for the transportation of persons for hire, a bus, taxicab, streetcar, cable car, trackless trolley, or other motor vehicle, including a vehicle operated on stationary rails or on a track or rail suspended in air, or that operates a school bus. As used in this section, "on the property of"

means the entire station where public transportation is available, including the parking lot reserved for the public who utilize the transportation system.

CA Pen. Code § 243.3:

When a battery (any willful and unlawful use of force or violence upon the person of another) is committed against the person of an operator, driver, or passenger on a bus, taxicab, streetcar, cable car, trackless trolley, or other motor vehicle, including a vehicle operated on stationary rails or on a track or rail suspended in the air, used for the transportation of persons for hire, or against a school bus driver, or against the person of a station agent or ticket agent for the entity providing the transportation, and the person who commits the offense knows or reasonably should know that the victim, in the case of an operator, driver, or agent, is engaged in the performance of his or her duties, or is a passenger the offense shall be punished by a fine not exceeding ten thousand dollars ($10,000), or by imprisonment in a county jail not exceeding one year, or by both that fine and imprisonment. If an injury is inflicted on that victim, the offense shall be punished by a fine not exceeding ten thousand dollars ($10,000), or by imprisonment in a county jail not exceeding one year or in the state prison for 16 months, or two or three years, or by both that fine and imprisonment.

Bus Operator Training

Customer Service Skills:

All bus operators complete a 9-week training program prior to going into individual revenue service. During this time, employees are taught various aspects of providing good customer service skills to all passengers. This includes:

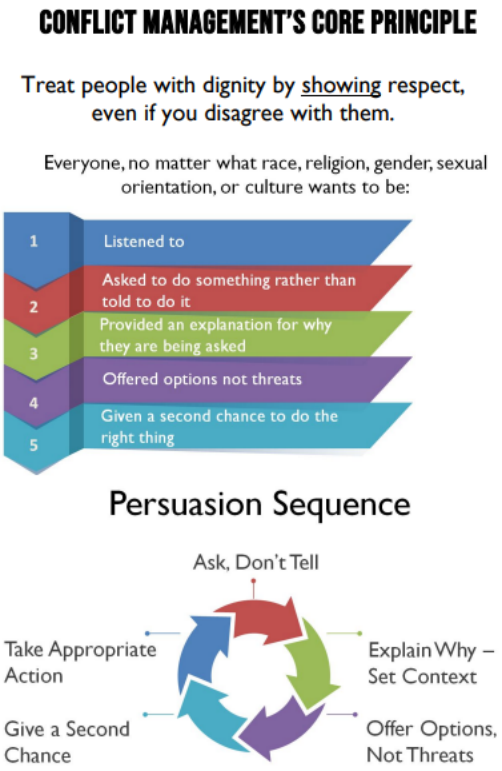
- Welcome passengers with a smile and/or greeting
- Make eye contact with passengers as they board
- Take the opportunity to inform boarding passengers of any possible delays or detours
- Let passengers know through actions and attitudes that they are important and welcome on the bus
- Listen to passengers and try to understand the problem, complaint or compliment
- Ask appropriate questions for clarification
- Offer empathy, courtesy, and patience- and a solution if possible
- Don’t blame others
- Don’t ignore the passengers
- Thank passengers for riding with you
- Use courtesy to build rapport with your passengers

De-Escalation / Conflict Resolution Skills:

Throughout the day, bus operators are likely to encounter people and situations that can be difficult to address without some degree of conflict. These include coping with passengers who eat or drink on the bus, those who refuse to pay the full fare, passengers who play loud music or talk loudly on cell phones,

those who annoy other passengers; those who use obscene or abusive language, etc. In order to safely address these types of issues, bus operators are taught to:

- Treat people with dignity by showing respect, even if you disagree with them.
- Always give the passenger an "out."
- Never give the passenger an ultimatum- offer a compromise.
- Never imply that a passenger is stupid.
- Give passengers options and allow them to make the decision.
- Persuasion sequence: Ask don't tell, Explain why-set context, Offer options-not threats, Give a second chance





Maintenance Employee Training

All front-line maintenance employees receive assault prevention and de-escalation training. This training program was developed using the framework from the National Transit Institute's Assault Awareness and Prevention course. The course covers the definition of assault, the different phases of emotions that could lead to an assault, showing respect to someone else, the rules of engagement when threatened, how to report an assault in the workplace, and getting help after an assault has occurred. The training also includes scenarios a maintenance employee may encounter on the job. This includes: Interacting with passengers upset about a vehicle breakdown, answering passenger questions while at a transit center, engaging individuals who may be trespassing in unauthorized areas, encountering a sleeping passenger inside a bus on the bus lot.

Inform Not Enforce Procedures:

Bus Operators are not required to enforce company policy. Bus Operators are only required to politely and calmly inform the passenger of the policy or course of action needed. In the event a passenger continues to argue or escalate the situation, bus operators are taught to:

- Allow the passenger to board the bus and take a seat.
- Call radio dispatch for direction or assistance. Secure the bus and open the doors if necessary.
- If a situation or passenger's behavior jeopardizes safety, secure the bus and contact radio for assistance. Strive to keep calm and avoid calling attention to the passenger or situation.

Bus Operator's Manual Policies

Section 3.15

Personal Conduct: Fighting is prohibited at any time while on duty and/or on MTS property. Operators must do everything reasonable to de-escalate a potential situation. Operators need to be selective of the words they use and not engage in offensive or sarcastic speech. Use good judgment and appropriate language when dealing with unruly passengers. Do not insist upon the full compliance of rules to the point of conflict. Operators are advised not to leave their seat to pursue any individual for the purpose of confrontation. By law, Operators may defend themselves provided they use no more force than necessary to carry out their defense. It is recommended that any actions taken in defense will be done from the Operator's seat compartment. Operators should open all doors and allow the offender and/or passengers to exit in the event of a confrontation.

Section 3.16

Requirement to Exhibit Courtesy: Courtesy is defined as being considerate and polite towards others. Once safety is achieved, the focus should be on courtesy. Look at each level of consideration and remember that the courtesy extended to those at the highest level should be the same as that given to those at other levels. In other words, treat each passenger as if they are the most important person in the world because, in a sense, they are. if a passenger complains when an operator attempts to enforce MTS Bus rules, the operator should explain that the rule is company policy and is intended to promote good order on the bus. If the passenger continues to object, the operator should suggest that the passenger contact Customer Service for greater clarification.

Section 4.16

Restraint of Passengers: In no case should you resort to physical means to enforce rules, nor should you restrain a person against their will by means of closing the bus doors. Please request assistance from the Communications Supervisor and a Supervisor and/or a law enforcement officer will respond. Passengers must not be detained on the bus nor are they to be restrained from leaving the bus under any circumstances. Secure the bus, open all doors and allow everyone to exit.

Section 4.17

Ejection of Passengers: Removal of a passenger will be authorized as a last resort. In each case, first ask the offending party to stop the offensive conduct. If they refuse, ask them to leave the bus. If they refuse, call the Communications Supervisor. Do not take any physical action against a passenger, unless it is obvious that a threat to your safety or a threat to the safety of your passenger(s) exists. Remain in your seat at all times. If you are attacked, you have the right to defend yourself, but you are never to be the aggressor. When the attacker leaves the bus, close the doors and call the Communications Supervisor for further instructions.

Section 4.5

Alighting Passengers: Encourage all passengers to leave the bus via the rear exit door. Using the front door to load and the rear door to exit will help you to maintain your schedule. Please recognize that many senior citizens feel safer sitting in the front and will wish to use the front door to exit. Please allow them this small courtesy.

Section 9.4

Disturbances on MTS Buses or Property: MTS Bus will not tolerate the use of hurtful, hateful or profane language by our employees at any time. You must never engage in a hostile, profane or disrespectful verbal confrontation with anyone. In a similar manner, we will not tolerate any threat of physical violence, whether spoken, written, inferred or implied. These acts are strictly prohibited in the workplace which we define as all MTS property (Divisions, facilities, garages, stations, buses, support vehicles). Any assault by an employee upon passenger, motorist, any third party, a fellow employee, supervisor and/or a manager, either on or off duty is subject to immediate termination. As an employee of MTS Bus, you have a limited right to defend yourself from a direct physical attack when you have good cause to believe that you may be harmed or injured. You must exercise your best judgment when involved in such a situation and only use that degree of force necessary to subdue the attack and restore order; otherwise, it may be found that you were acting outside the scope of your employment, and you may incur personal liability. The identification, apprehension, prosecution and conviction of parties committing violent acts and creating disturbances on buses is highly desirable. Every effort should be made to report such incidents to the Communications Supervisor as soon as possible. You should also secure names of all witnesses. Assaults and batteries on bus operators can be prosecuted. In the event that an assault occurs on the bus, immediately notify the Communications Supervisor and ask for law enforcement assistance. Do not attempt to apprehend the assailant; that is the responsibility of law enforcement officers. When a suspect is apprehended, the victim has the right to make a private person's arrest for the violation. This will require the victim to complete an arrest by private persons form provided by the arresting officer. The suspect may be taken to jail, or the suspect may be issued a citation and released at the scene. You must complete an MTS Bus Incident Report prior to going off shift and include complete details of the incident documented in chronological order to establish the elements of the crime and determine the severity of the charges.

Section 10.8

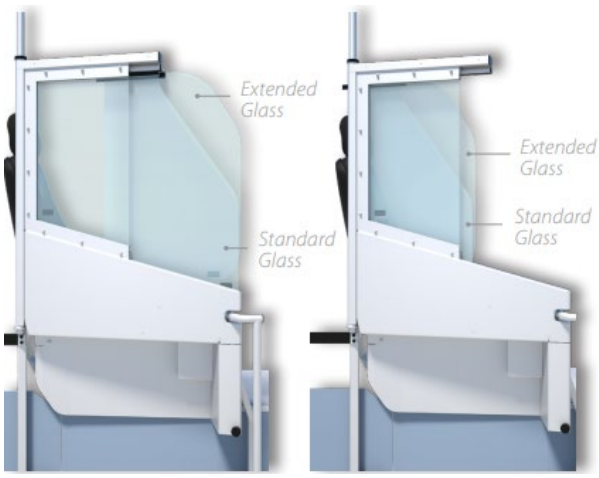
Resolving Fare Disputes: Operators are required to make a reasonable attempt to collect fares and enforce the fare policy equally and fairly with each passenger. Operators are required to politely inform them once to comply with the fare policy. When requesting compliance, the Operator should keep in mind their safety and that of the other passengers as well as maintaining revenue service. If the passenger does not or cannot comply, do not pursue the matter any further and record the fare as a No Pay.

Bus Equipment

Driver barriers

All 40 and 60-foot fixed route buses are equipped with the AROWGuard Driver Protection System. The AROWGuard Slide System is a fixed door that incorporates a sliding two piece glass system. The system has a steel base on the lower portion and uses laminated tempered glass with an anti-glare coating on the top portion. This design allows the driver to adjust the sliding glass into multiple positions, similar to the driver's window.





Camera Systems

All buses are equipped with modern camera systems that cover both the inside and outside of the vehicle. All 40 and 60-foot fixed route buses have at least 8 total cameras and have 2 cameras that cover the driver area from different angles. Each camera system is equipped with a hard drive recorder that stores video for approximately 7-10 days. Video footage from the hard drive can be wirelessly downloaded to a remote server where the footage can then be preserved for up to one year. Video footage that requires long-term preservation can be saved on the agency's shared network. MTS has also started upgrading the existing camera system in order to access live video feed via cellular service in the event of an emergency.



Passenger Awareness Display

The passenger awareness display is a 9-inch monitor that is mounted above the bus operator seat that shows a live security camera feed of passengers as the board the bus and are standing at the farebox. The intent of the display is for passengers to see themselves on the monitor and to understand that there is visual proof of any crime that could occur while onboard the vehicle. MTS began installing a

passenger awareness display on all new fixed-route bus purchases starting in 2020. To date, approximately 25 percent of the fixed-route fleet are equipped with this device.



Fleet Communication and Management System

MTS buses are equipped with a fleet management system that is actively managed by an Operations Supervisor 24 hours every day. This system includes:

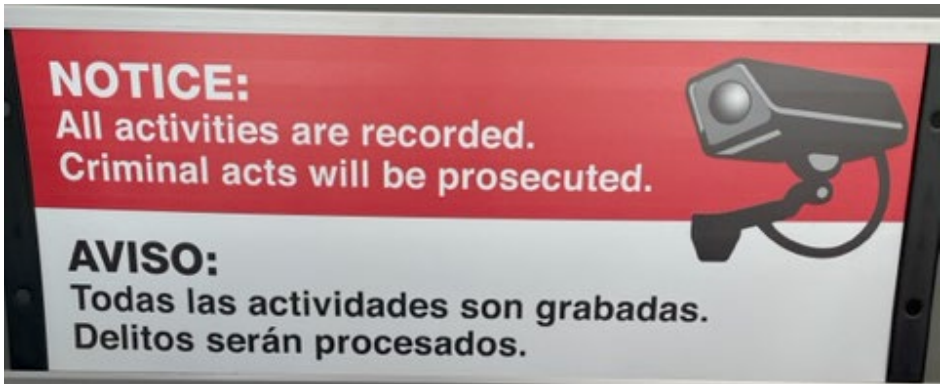
1. Computer Assisted Dispatch (CAD) capabilities,
2. Real-time vehicle tracking via Global Positioning System (GPS) using satellites that poll vehicle locations every 15-seconds,
3. Wireless data communications, and
4. Automated Vehicle Location (AVL) map and data displays

Panic "Code Blue" Emergency Alarm Button

All buses are equipped with a hidden button next to the bus operator's seat that immediately notifies the on-duty operations supervisor of an emergency that may prevent the bus operator from visibly using the two-way radio. Once this button is pushed, a hidden microphone inside the bus is activated, and additional resources are dispatched to respond to the vehicle.

Vehicle Signage

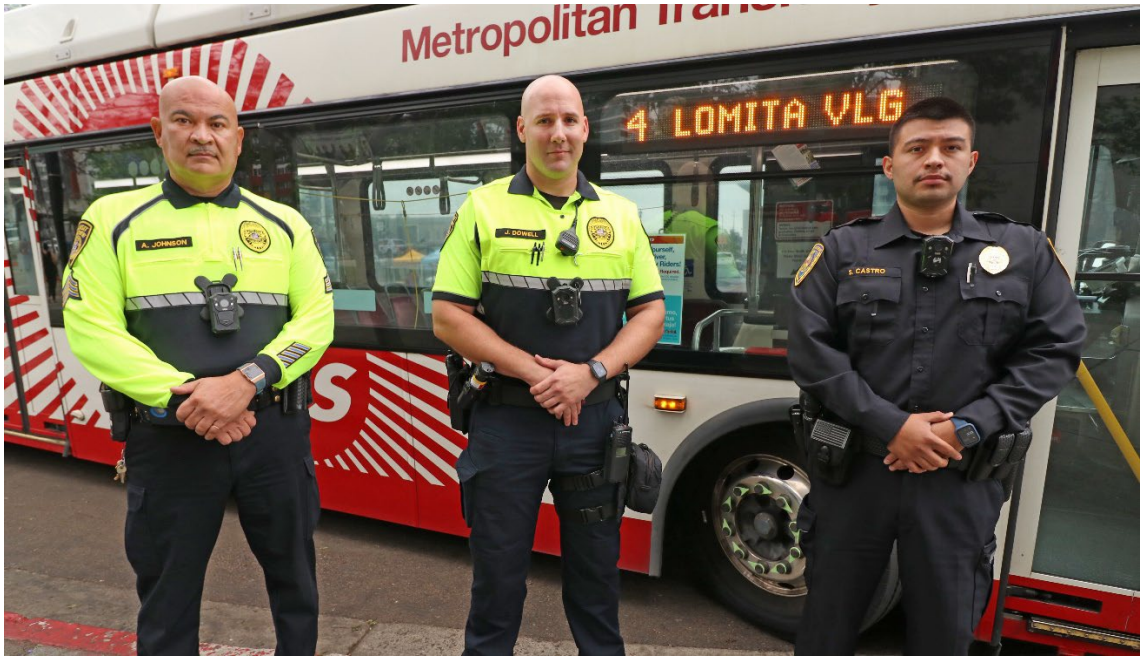
All buses have signage inside the vehicle informing passengers they are being recorded and criminal acts will be prosecuted. Additionally, signage is posted on the driver barrier door that states: "Employees are protected by state law, assault a bus driver go to jail. Punishable by CA Pen. Code § 241.3."





Security Bus Enforcement Support Team (BEST)

The Bus Enforcement Support Team (BEST) is a security group that includes two teams and a supervisor dedicated to bus service. The teams regularly sweep bus stops and respond to requests occurring onboard buses to handle disruptive passengers, fare evasion, and any other high priority incidents.



Assault Tracking & Reporting

Internal Database

MTS developed an internal tracking database to track all assaults on transit workers. The database tracks basic operational information including the date, time, location, employee ID etc., as well as law enforcement status including the case number, charges filed, prosecution, trial, and sentencing. The information on the database is used to assist with allocating security resources throughout the system as well as facilitating the prosecution of crimes against transit workers.

National Transit Database (NTD)

MTS reports all applicable transit worker assaults to the National Transit Database (NTD) on a monthly basis. This includes both major events (injury requiring medical treatment) and minor events (non-injury). These assaults are reported for each mode of transportation and include both physical and non-physical assaults.

Transit Worker Support Post Assault

Optional Change of Assignment

Following an assault, bus operators can request to have their regular assignment changed to another route/time of day, in order to reduce the likelihood, the employee will encounter the assailant in the future. Management does not require the employee change their work assignment, but does support an employee if they request the change.

Workers Comp Waiting Period

California has a 3-day waiting period before workers compensation benefits are paid for injuries sustained on the job. MTS waives the 3-day waiting period when the injury was the result of being assaulted while on duty.

Employee Assistance Program

MTS offers an Employee Assistance Program (EAP) which allows transit workers to receive free confidential professional counseling/therapy sessions. These sessions are available 24 hours a day, 7 days a week and can be conducted face to face, via tele-video or chat therapy. Counselors can help with a wide range of issues including: Anxiety, depression, stress management, grief, self-esteem, family relationship support, etc.



Mitigations to Reduce Visibility Impairments for Transit Vehicle Operators

Relocation and Replacement of Speak Easy PA System with Microphone

In an effort to improve visibility around the driver-side-A-pillar, MTS retrofitted buses with a PA system mounted in the middle of the A-pillar, and lowered them to the lowest possible level. Additionally, MTS began to order new buses with a microphone instead of the previous Speak Easy PA system. By switching to a microphone, the overall footprint of the A-pillar is reduced and improves the visibility for the person driving the bus which helps identify vulnerable road users such as pedestrians and bicyclists.



Testing of Electronic Mirrors

MTS began the testing of electronic mirrors in the summer of 2023. The testing includes products from two different manufacturers and the systems are installed on a total of four buses. The goal of the testing is to determine if electronic mirrors can replace or supplement traditional mirrors to improve visibility while reducing the overall exterior bus footprint. This could lead to a reduction in pedestrian accidents as well as vehicle collisions if the electronic system provides as good as or better visibility to the person driving the bus.





Sun Visor Selection

Sun visors installed during the initial manufacturing process have been changed from a flip-down visor to a roll-down visor. This was done based on feedback from employees to reduce sun glare during sunrise and sunset hours.





Mitigations to Reduce Pedestrian Safety Events

Pause Focus Look Pedestrian Awareness Campaign

MTS developed a pedestrian awareness campaign to reemphasize the importance of pedestrian safety and specific driving techniques designed to reduce the likelihood and severity of a collision involving a pedestrian.

Pause:

- Always drive at safe speeds for current road conditions.
- Cover brake approaching intersections, crosswalks, school zones, and parks.
- Slow down or stop and allow the intersection to develop before making a turn.
- Make complete stops at all stop signs.
- Don’t take your foot off the brake pedal as soon as a traffic signal turns green
- DO NOT make a left turn with a red traffic signal while on a one way street.

Focus:

- Don’t relax while deadheading or when there are no passengers onboard.
- Make slow square turns - keep steering wheel straight with both hands on the wheel until the reference point.
- Avoid multi -tasking while driving (using the farebox, radio, destination sign, etc.).
- Avoid conversations with passengers while driving.
- DO NOT use cell phones or other electronic devices while driving.
- Handle distractions after securing the bus.

Look:

- Always look in the direction you are turning before you begin to move.
- Scan both sides of the sidewalk and intersection.
- Keep your eyes moving while stopped at red lights.
- Look out your driver window and the front door.
- Remember to rock & roll to look around blind spots & obstructions.
- Always give the right of way to pedestrians, and expect the unexpected.
- Before turning, re -scan the crosswalk.

MTS Bus



Pause Focus Look

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Every day as a professional bus operator, you have the important responsibility of ensuring the safety of yourself, your passengers, and others around you. This includes pedestrians, bicycles, and other vehicles. Pedestrians in particular, create a unique type of hazard because of their vulnerability and unpredictability. They are often distracted and may not pay attention to traffic. They may even step out into the roadway without looking. Regardless of the errors of others, you are always required to drive defensively and operate your vehicle with the utmost care.

PAUSE, FOCUS, LOOK is a safety campaign intended to remind you of defensive driving principles that are based on controlling the speed of your bus, staying alert, and actively scanning around your bus for pedestrians.



Safety: Every Trip, Every Day!

Infectious Disease Preparedness and Response Plan (COVID-19 Prevention Program)









Version 4.0, January 2025

Metropolitan Transit System

Approved by MTS Board of Directors on 6/18/2026

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1 INTRODUCTION

The Infectious Disease Preparedness and Response Plan was developed to document current best practices that are utilized by MTS to effectively limit the spread of viruses, and other types of potentially infectious materials throughout the transit system. The objectives of the plan are:

- Reduce the potential spread of viruses, infectious diseases or related illnesses throughout the transit system
- Educate and protect employees, customers, and business partners
- Maintain essential business activities
- Describe actions to effectively manage future infectious diseases if needed
- Establish and implement an effective written COVID-19 Prevention Program (CPP) pursuant to the Emergency Temporary Standards in place for COVID-19, California Code of Regulations (CCR), Title 8, section 3205(c)

A pandemic will affect many business functions due to several factors including but not limited to employee absenteeism, shortage of supplies, health department restrictions on public gatherings, and reduced ridership.

MTS has developed this Plan based on current infection prevention and hygiene best practices. It focuses on the need to implement engineering, administrative, work practice controls, and personal protective equipment (PPE). This written plan draws on the best information available from:

- World Health Organization (WHO)
- Center for Disease Control (CDC)
- Occupational Safety and Health Administration (OSHA)
- American Public Transit Association (APTA)
- California Department of Public Health (CDPH)
- San Diego County Public Health Service

It is recognized that advice on infection prevention will change over time as new information becomes available. MTS will continue working with these agencies to obtain the latest information as well alter its operations, policies and procedures to follow current requirements imposed by federal, state and local entities. MTS will update the Plan to address additional specific exposure risks, sources of exposure, routes of transmission, and other unique characteristics of SARS-CoV-2 (i.e., compared to other influenza viruses) as needed.

1.1 EMPLOYEE ACCESS TO THE PLAN

The Plan is always available electronically to all employees during working hours, from the MTS intranet, Environmental Health and Safety page.

Paper copies can be printed from the intranet, and are also available upon request, for examination and copying, to all employees, external agencies (or their respective designees).

When a division head or supervisor receives a request from an employee's designated representative, or external agency to review this Plan, the division head or supervisor shall provide the requested document (s) at no cost to the requesting party.

2 ACRONYMS

APTA	American Public Transit Association
CDC	Center for Disease Control
CDPH	California Department of Public Health
MTS	San Diego Metropolitan Transit System
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
SOP	Standard Operating Procedure
WHO	World Health Organization

3 RESPONSIBILITIES

MTS will be guided based upon the threat levels identified by the WHO, CDC, as well as other Federal, State and local health agencies.

In San Diego County, the Public Health Services Department has responsibility for health issues and has the authority to implement public activity restrictions if needed. Since each pandemic is unique, MTS will coordinate with Public Health to identify and confirm appropriate actions for dealing with public health issues concerning infectious diseases, such as COVID-19, to help protect employees and the riding public.

Each MTS employee is required to carry out specific responsibilities consistent with their position. All levels of management are accountable for the implementation of this Plan within their respective work areas. The information provided below describes the position and responsibilities of that position.

Position	**Plan Responsibilities**
All MTS Employees	Adhere to established training, policies and procedures. Participate in the identification and evaluation of hazards. Report symptoms, potential exposures or positive test results to Human Resources and their immediate supervisor. Practice good personal hygiene, social distancing, and donning of PPE. Protect and respect individuals Health Insurance Portability and Accountability Act (HIPAA) rights.
Department Directors, Managers, and Supervisors	Implement and maintain the Plan in their assigned work areas. Provide adequate, usable, department-appropriate informational material about business-essential job functions and worker health and safety, including proper hygiene practices and the use of workplace controls (i.e. PPE).

	Ensure employees receive answers to questions about the program in a language they understand. Conduct contact tracing for employees within their department and notify employees of potential exposure.
Chief Executive Officer	Uphold accountability across all departments within the agency. Allocate available capital and financial resources needed to maintain the plan. Promote a positive safety culture throughout the agency. Communicate with the Board of Directors. Maintain communication with other government agencies to obtain the latest information and/or guidelines. Lobby local, State and Federal entities for additional resources. Retain the ultimate responsibility for the management of this plan.
Chief Financial Officer	Oversees all agency financial revenues and expenses, ensures financial compliance with contractual terms, financial forecasting and budgeting, and the procurement of all goods (including PPE and cleaning resources) and services necessary for implementation of the Plan.
Chief Operating Officer (COO) of Rail	Manage day to day operations and maintenance for Rail. Direct the implementation of this plan for Rail. Evaluate the performance of this plan for Rail. Establish core roles and responsibilities to ensure business continuity;

	Make the decision to limit or shut down service when absence rates or other factors threaten safety or business continuity.
Chief Operating Officer (COO) of Transit	Manage day to day operations and maintenance for Transit. Direct the implementation of this plan for Transit. Evaluate the performance of this plan for Transit. Establish core roles and responsibilities to ensure business continuity. Make the decision to limit or shut down service when absence rates or other factors threaten safety or business continuity.
General Counsel	Interpret applicability of existing laws, regulations, emergency orders, etc., to ensure agency policies and practices are in compliance. Oversees Risk and Workers' Compensation Department.
Human Resources	Maintain personnel medical records including vaccination and testing status. Develop, implement, adjust, and communicate workplace sick leave, attendance, healthcare, return to work, and remote work policies and protections. These include: Employer or government-sponsored leave benefits employees may be entitled to receive when sick or required to quarantine, for example Families First Coronavirus Response Act (FFCRA) etc. Actively encourage sick employees to stay home if the condition warrants it; Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies so they are more likely to stay home when required/needed.

	Respond to workers' concerns about sick leave, and other related issues that may arise. Work with insurance companies providing employee health benefits and state and local health agencies to provide information to employees about medical care in the event of an infectious disease outbreak.
Information Technology (IT) Department	Oversees the management of technology and computer systems that support the Plan; Establish infrastructure to support employees that have been approved for working remotely; Make web-based/VPN access available to allow secure network access from home if necessary; Set up a system to facilitate virtual conferences for Board and other meetings.
Marketing Department	Oversees the communication and distribution of information internally and externally as it relates to the Plan.
Planning Department	Oversees internal planning efforts and coordinates with external stakeholders to ensure safety concerns, as they relate to the Plan, are addressed in design and location of transit amenities. Evaluates service levels and develops service modification relative to needs, safety concerns, policies and resources. Identify essential bus routes, if reduction of service levels is needed to maintain continuity of operations.
Safety Department	Develop, maintain, and update this plan as needed. Respond to workers' concerns about safety and/or hazards. Assist departments within the agency to provide adequate, usable, department-appropriate informational material about business-essential job functions and worker health and safety, including proper hygiene practices and the use of workplace controls (i.e. PPE).

	Review safety data sheets (SDS) for new chemical product requests as necessary, with guidance from appropriate regulatory agencies.
Supply Chain and Operations	Establish and maintain communication with key vendors and contractors for continuous services and supplies. Increase min/max stock to ensure PPE and cleaning supplies can meet increased demand. Establish mechanism to procure any needed PPE in large quantities on an emergency basis with very short time frames (1-2 days). Ensure timely and accurate delivery of good purchased, and work with vendors to expedite deliveries when possible. Distribute PPE to departments as requested and maintain proper inventory levels to ensure continuity of supply. Communicate with Department Directors/Managers when items are on backorder and/or supplies are low in stock.

4 INFECTION PREVENTION MEASURES

Safety professionals use a framework called the “hierarchy of controls” to select ways of controlling workplace hazards (**Figure 1**). The best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure. During a pandemic, or infectious disease outbreak, it may not be possible to eliminate the hazard. Protection measures from most effective to least effective are: Elimination, Substitution, Engineering, Administrative, and PPE.

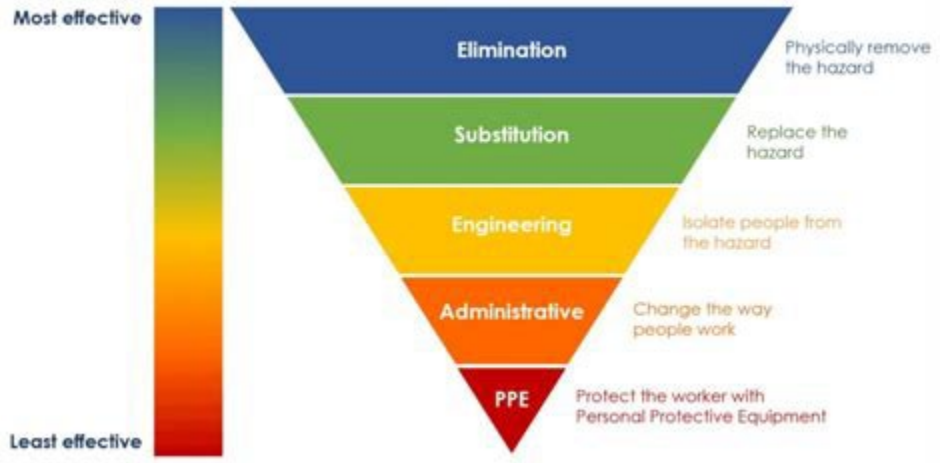


Figure 1: Hierarchy of Controls

There are advantages and disadvantages to each type of control measure when considering the ease of implementation, effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to a virus or infectious disease.

Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior.

Administrative controls change the way people interact, depend on compliance of the correct procedure by workers, and are best when combined with other controls. Administrative controls include safe work practices. Safe work practices are procedures used to reduce the duration, frequency, or intensity of exposure to a hazard.

While engineering and administrative controls are considered more effective in minimizing exposure to viruses and infectious diseases, PPE may also be needed to prevent certain

exposures. Correctly using PPE can help prevent some exposures, however it should not take the place of other prevention strategies.

4.1 CLEANING AND DISINFECTING PROTOCOLS

Cleaning with products containing soap or detergent reduces germs on surfaces by removing contaminants and decreases risk of infection from surfaces. Routine cleaning for high-touch surfaces should be done to the maximum extent practicable. Once surfaces have been cleaned, they should be disinfected using a product from EPA List N: https://www.epa.gov/coronavirus/about-list-n-disinfectants-coronavirus-covid-19-0 when supply is available. The manufacturer's instructions should be followed for use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE). Diluted household bleach solutions (5 tablespoons per gallon of water), or alcohol solutions with at least 70% alcohol may also be used when appropriate for some surfaces. Approved sanitizing wipes may also be used on high touch surfaces when practical.

At a minimum, thorough cleaning on high traffic areas and high touch surfaces within buildings, transit centers and in vehicles should be performed daily. These areas include shared office spaces and work areas, break rooms, restrooms, stairways, elevators, etc. High touch surfaces in these areas include but is not limited to:

- Doorknobs and handles
- Handrails and grab bars
- Elevator and door buttons
- Seats and benches
- Kiosks, touch screens, timecard machines, etc.
- Copiers and printers
- Keyboards and mice
- Telephones and microphones
- Breakroom tables and microwaves
- Shared tools and equipment
- Bathroom surfaces

Vehicles should be thoroughly cleaned daily using approved products that are known to be effective against viruses and other pathogens. Additional mid-day cleaning of vehicles may be necessary depending on conditions such as positive test rates within the community and cleaning staff availability. Bus/Train Operator areas should be wiped

down with approved sanitizing wipes at the beginning and ending of each shift in addition to daily cleaning.

4.2 PERSONAL HYGIENE

Promoting good personal hygiene is an essential element of reducing the risk of virus transmission. Promoting good personal hygiene includes but is not limited to:

- Providing adequate hand washing stations for employees throughout the system.
- Using alcohol-based hand sanitizer with greater than 60% ethanol or 70% isopropanol as active ingredients when hand washing is not practical.
- Wearing/removing gloves as a supplement to hand washing for tasks such as handling commonly touched items, or when hand washing is not practical.
- Operators should wear gloves before, and sanitize their hands after assisting passengers using a wheelchair or other mobility device.
- Requiring regular hand washing or use of alcohol-based hand sanitizer after using the restroom, after removal of gloves, or prior to meal/smoking breaks.
- Washing hands when they are visibly soiled and after removing any PPE.
- Encouraging respiratory etiquette, including covering coughs and sneezes.
- Discouraging employees from using other workers' phones, desks, offices, or other work tools and equipment, when practical.
- Instructing employees not to share unwashed dishes, drinking glasses, cups or eating utensils.
- Providing hand washing stations for the public at transit centers where practical.

4.3 PHYSICAL BARRIERS

Physical barriers are typically transparent materials such as glass or plexiglass used to reduce the spread of aerosol droplets from coughs and/or sneezes. These barriers are generally used in work areas with high traffic volume or when social distancing may not be practical. The following includes but is not limited to locations that may warrant a physical barrier:

- Check-in counters or kiosks
- Health screening locations (temperature checks, COVID testing)
- Bus Operator area near farebox
- Lobby, reception, and Transit Store areas between employees and the public
- Workstations or cubicles that are less than 6 feet between workers
- Storeroom counter between general employees and clerks

- Any practical location where individuals are unable to physically distance

4.4 SOCIAL DISTANCING

Social distancing is a strategy to reduce virus transmission by physically separating individuals from one another. Social distancing should be a minimum of 6-feet when practicable. The following includes but is not limited to measures that may be taken to promote social distancing:

- Install floor markings, signs, arrows, etc. that inform individuals preferred path of travel and standing/sitting locations.
- When practicable, maintain normal service levels, add service, or use larger vehicles to enable passengers to distance from each other while onboard.
- Reduce onboard maximum occupancy to support physical distancing.
- Communicate the updated ridership practices and any changes to the frequency of service timetables to the public.
- Request passengers to avoid standing or sitting within six feet of operators, including moving the standee line aft where appropriate.
- Encourage passengers to purchase tickets through electronic or cashless ticketing system (Pronto App) to limit time at farebox.
- Permit rear door boarding for buses not yet equipped with physical (germ) barriers or as needed.
- Allow/encourage passengers to verbally request a stop to avoid having to touch the stop request signal.
- Utilize single passenger trips for ADA passengers on Access.
- Conduct fare checks at station platforms instead of inside vehicles.
- Limit public access to MTS non-revenue facilities, and lobbies.
- Reconfigure, or restrict indoor common areas.
- Limit number of occupants indoors for training or other purposes.
- Increase distance between tables/chairs in breakrooms to separate employees and discourage congregating during breaks.
- Where possible, create outdoor break areas for employees with shade/rain covers and seating.

4.5 FACE COVERINGS

Face covering means a surgical mask, a medical procedure mask, a respirator worn voluntarily, or a tightly woven fabric or non-woven material of at least two layers that

completely covers the nose and mouth and is secured to the head with ties, ear loops, or elastic bands that go behind the head or ears. Gaiters may be worn as long as there are at least two layers of fabric, or it is folded to make two layers. A face covering is a solid piece of material without vents, slits, visible holes, or punctures, and must fit snugly over the nose, mouth, and chin with no large gaps on the outside of the face. A face covering does not include a scarf, ski mask, balaclava, bandana, turtleneck, collar, or single layer of fabric.

Employees may be required to wear clean, undamaged face coverings and ensure they are properly worn over the nose and mouth in various situations depending on current requirements issued by Federal, State, or local authorities. Some conditions that may require individuals to wear a face covering include but is not limited to:

- When conducting personal health screenings
- When inside a public transit vehicle or at a public transit station
- When indoors in common work areas, meeting rooms, hallways, elevators, etc.
- When outdoors and less than six feet away from another person
- When unvaccinated

The following may be exceptions to the use of face coverings:

- While actively eating or drinking, provided employees are at least six feet apart.
- When use of a face covering would affect the safe operation of a vehicle and/or equipment.
- Employees who cannot wear face coverings due to a medical or mental health condition or disability, or who are hearing-impaired or communicating with a hearing-impaired person. Upon request, employees may ask for alternatives to be considered by contacting Human Resources. Reasonable modifications will be made on a case-by-case basis as required by law.

Additionally, employees may wear a face covering at their discretion as long as it is appropriate for the business environment and does not interfere with the safe operation of a vehicle or other equipment. Retaliation for the optional use of a face covering regardless of vaccination status is illegal.

4.6 ALTERNATIVE AND REMOTE WORK

Minimizing personal contact among workers, clients, and customers by replacing face-to-face interactions with virtual communications should be utilized when practicable. The following includes but is not limited to alternative work suggestions:

- Limit customers' and the public's access to the worksite, or restrict access to only certain workplace areas, where appropriate.
- Temporarily suspend in person ADA eligibility evaluations.
- Discontinue nonessential travel to locations with ongoing COVID-19 outbreaks.
- Replace in-person meetings with conference calls/virtual meetings (Zoom, WebEx, Teams, etc.)
- Stagger employee working hours and breaks, in compliance with wage and hour regulations, to promote physical distancing protocols.
- Relocate business activities outdoors when practical
- Permit remote work for administrative and management staff

4.7 PERSONAL PROTECTIVE EQUIPMENT (PPE)

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-CoV-2, PPE may also be needed to reduce chance of exposure. PPE is considered the last line of defense and should not take the place of other prevention strategies. Examples of PPE include: gloves, goggles, face shields, or face masks. Recommendations for PPE specific to occupations or job tasks may change depending on job type, job location, updated risk assessments for workers, and new information on PPE effectiveness in preventing the spread of COVID-19 or other viruses.

All types of PPE must be:

- Selected based upon the hazard to the worker,
- Properly fitted,
- Consistently and properly worn when required,
- Regularly inspected, maintained, and replaced, as necessary, and
- Properly removed, cleaned, and stored or disposed of, as applicable, to avoid contamination of self, others, or the environment.

4.8 PERSONAL HEALTH SCREENINGS

MTS may ask employees to evaluate their health before reporting to work. Health screenings may include non-contact temperature checks, virus testing, or reporting of symptoms associated with being ill such as fever, cough, sore throat, body ache, etc. All health screenings shall be provided to employees at no cost. Screeners should avoid close contact with employees by using physical barriers when practical. Both screeners and employees should wear face coverings during the screening. Employees who

exhibit symptoms or other signs of infection must be immediately removed from the workplace and sent for professional medical testing/evaluation before being permitted to return to the workplace.

4.9 AIR QUALITY

Managing indoor air quality can be complex. Indoor air quality can be affected by several variables that cannot always be easily controlled or changed. HVAC design, availability of fresh air, ambient temperatures, and humidity, can all affect indoor air quality. Generally speaking, indoor air quality can be improved through the following methods:

- Reduce/remove source(s) of airborne viruses
    - Reduce number of occupants that may be sick/contagious
    - Use masks/face coverings to reduce amount of virus going into air
- Reduce/remove amount of airborne virus through improved filtration
    - Increase MERV rating on air filters to highest practical level without negatively impacting HVAC system(s)
    - Increase scheduled replacement/cleaning of air filters
- Reduce/remove amount of airborne virus through introduction of fresh air
    - Open doors/windows assuming this doesn’t increase safety/security risk
    - Adjust HVAC controls to increase outdoor air intake if configurable

5 TRAINING AND COMMUNICATION

Training staff and riders on how to manage and mitigate risks associated with infectious disease is essential. Management works proactively and transparently with labor leadership to ensure employees participate in the identification and evaluation of hazards. This process is primarily conducted through the employee safety committee. Policies and procedures will be communicated as they are developed and are tailored to the education level and language of the intended audience.

5.1 INTERNAL TRAINING & COMMUNICATIONS

MTS uses the following media to communicate and train individuals within the organization:

- Emails
- Bulletin boards
- Text messages
- Virtual and in-person training sessions
- Company intranet

Under the Emergency Temporary Standards (ETS), Cal OSHA requires the following training topics be provided to all employees:

- Policies and procedures to protect employees from COVID-19 hazards and how to participate in the identification and evaluation of those hazards.
- Information regarding COVID-19-related benefits, either from the employer or from federal, state or local government, that may be available to employees impacted by COVID-19. Information on COVID-19 benefits, such as paid sick leave and workers' compensation benefits, is posted on the Department of Industrial Relations' Coronavirus Resources webpage.
- COVID-19 is an infectious disease that can be spread through the air when an infectious person talks or vocalizes, sneezes, coughs or exhales; that COVID-19 may be transmitted when a person touches a contaminated object and then touches their eyes, nose or mouth, although that is less common; and that an infectious person may show no symptoms.
- Proper use of face coverings and the fact that face coverings are not respiratory protective equipment.
- The conditions under which face coverings must be worn at the workplace.
- That employees can request face coverings from the employer at no cost to the employee and can wear them at work regardless of vaccination status, without fear of retaliation.

- That respirators such as N95s are more effective at preventing COVID-19, an airborne disease.
- The employer's policies for providing respirators, and the right of employees who are not fully vaccinated to request a respirator for voluntary use, without fear of retaliation and at no cost to employees.
- When respirators are provided for voluntary use, how to properly wear them and perform a seal check, and the fact that facial hair interferes with a seal.
- The importance of frequent hand washing for at least 20 seconds and use of hand sanitizer when handwashing facilities are not available.
- The symptoms of COVID-19 and the importance of not coming to work and of getting tested if an employee has symptoms.
- Information about the employer's COVID-19 policies; how to access COVID-19 testing and vaccination; and the fact that vaccination is effective at preventing COVID-19, protecting against both transmission and serious illness or death.

Temporary or contract workers at MTS facilities are also trained in prevention policies and have necessary PPE. These responsibilities are discussed ahead of time with the contractor or organization supplying contract workers.

5.2 EXTERNAL TRAINING & COMMUNICATIONS

MTS created the Clean Ride Campaign to inform and educate the public on new requirements and prevention measures when using the transit system. MTS uses the following media to communicate the Clean Ride Campaign externally:

- Website
- Digital ads
- Social media
- Local radio and television
- Flyers and ad cards inside vehicles

Messaging topics to inform and educate the public includes but is not limited to:

- Changes in policies
- Precautionary measures the agency is taking.
- Do not ride if you have any indication that you might be ill or have been exposed to an infectious disease; if riding transit is your only way to get help, wear a mask, cough into your elbow, and minimize touching surfaces with your hands.
- Use public transit for essential trips only.
- Wear a cloth mask or facial covering.
- Socially distance from other customers when practical.

- Limit interactions with employees and respect their need to distance from passengers.
- If the vehicle is full, consider taking the next vehicle.
- Encourage passengers to carry alcohol-based hand sanitizer and/or alcohol-based wipes for disinfection of frequently touched surfaces
- Use of contactless fare
- Communicate boarding considerations such as “rear door boarding” on buses

6 REPORTING PROCEDURES

All employees are responsible for promptly reporting to management when they are sick, experiencing flu-like symptoms, or have had a close contact to someone who has tested positive for COVID-19 or other infectious virus. Employees can report symptoms, possible close contacts and hazards without fear of reprisal. Human Resources will provide information regarding COVID-19-related benefits to which the employee may be entitled under applicable federal, state, or local laws. This includes any benefits available under legally mandated sick and vaccination leave, if applicable, workers' compensation law, local governmental requirements, the employer's own leave policies, leave guaranteed by contract, etc.

7 CONTACT TRACING

Following notice of a sick individual, management will conduct an interview(s) with the affected person(s) to determine if there are additional close contacts within the workplace. “Close contact” means being within six feet of a COVID-19 case for a cumulative total of 15 minutes or greater in any 24-hour period within or overlapping with the infectious period, regardless of the use of face coverings, unless close contact is defined by regulation or order of the CDPH. If so, the CDPH definition shall apply. If additional employees are determined to have potentially been exposed or had close contact, MTS will notify employees in writing as soon as possible and no later than within one business day. MTS may require employees who have had such an exposure, seek medical treatment and/or testing. Testing will be conducted at no cost to the employee and conducted during normal working hours (when possible). MTS will require employees and contractors to adhere to applicable isolation and quarantine requirements mandated by Federal, State, or local health agencies. Confidentiality will be maintained and the identity of those affected will not be disclosed to other employees in accordance with HIPPA regulations. Following the notification of employees, Management will investigate the exposure and evaluate workplace conditions to ensure potential hazards are properly mitigated.

8 RETURN TO WORK PROCEDURES FOR CLOSE CONTACT AND POSITIVE TEST

The following return to work criteria shall apply to COVID-19 cases and close contact exposures. Contact MTS Human Resources for any questions related to return to work procedures.

8.1 CLOSE CONTACT FULLY-VACCINATED EMPLOYEES

Employees who are fully vaccinated and have received a booster dose or are vaccinated and not yet eligible for a booster shot, may continue to work following exposure if they are not experiencing symptoms. It is recommended, but not required, that the exposed employee test five days after the most-recent exposure. Following the most recent exposure, the employee must wear a well-fitting N-95 mask or other appropriate face covering and maintain six feet of distance from other at the workplace for fourteen days.

8.2 CLOSE CONTACT UNVACCINATED EMPLOYEES

Unvaccinated employees (including those who have tested positive for COVID-19 within the last 90 days) who have not completed their vaccine series and/or are booster eligible but have not received a booster shot, must quarantine for five days following their most-recent exposure. On the fifth day of quarantine, they should take a COVID-19 rapid test, and may return to work if the results are negative and they have no symptoms. The employee must wear a well-fitting N-95 mask or other appropriate face covering and maintain a six feet distance from others at the workplace for fourteen days.

This applies regardless of whether an employee has previously been excluded or other precautions were taken in response to an employee's close contact or membership in an exposed group. If an order to isolate, quarantine, or exclude an employee is issued by a local or state health official, the employee shall not return to work until the period of isolation or quarantine is completed or the order is lifted.

8.3 EMPLOYEES WHO HAVE TESTED POSITIVE

Employees who have tested positive may return to work if they take and pass a COVID-19 test with the specimen collected five or more days after the initial positive test **and** their symptoms are resolving **and** no fever is present.

If the employee returns to work, they must wear a well-fitting N-95 mask, or other appropriate face covering for a minimum of ten days after the initial positive test.

Employees who continue to test positive, or unable to test between days five and ten, may return to work after day ten if no fever is present and symptoms are resolving.

8.4 COVID-19 PROCEDURE UPDATES JANUARY 26, 2024

Metropolitan Transit System

Memorandum

DATE: January 26, 2024

TO: All Employees

FROM: Brendan R. Shannon, Director of Human Resources

SUBJECT: COVID-19 Procedure Updates

Over the last several years, MTS's response to COVID-19 has adapted as regulatory guidance and best practices have evolved. Recently, the California Department of Public Health issued a Public Health Order and updated its COVID-19 isolation and testing guidance. In accordance with these changes, MTS's COVID-19 isolation and exclusion procedures will be revised as follows:

- **Employees are no longer required to isolate for five (5) days**. Instead, symptomatic COVID-19 cases should isolate for a minimum of 24 hours from symptom onset.
- **Employees with symptoms who test positive for COVID-19 may return to work after 24 hours have passed with no fever, without the use of fever-reducing medications, so long as their symptoms are mild and improving.**
- **Employees who test positive for COVID-19 but do not have symptoms do not need to isolate**. If symptoms develop, the above criteria will apply.

Masking:

Masking guidance has not changed. While indoors, all individuals with confirmed COVID-19 cases must wear a well-fitted mask for ten (10) days following symptom onset, or, for asymptomatic cases, ten days following a COVID-19 positive test. Employees may remove their mask sooner than 10 days if they have two sequential negative tests at least one day apart. It is recommended that employees who have been in close contact with an infected person wear a mask for ten (10) days from the date of their most recent exposure. If symptoms develop, the isolation policy detailed above will apply. MTS will continue to make N-95 masks available to all employees and all employees are allowed and encouraged to wear masks or facial coverings even when not required by policy. Each department or "potentially exposed group" will continue to send memos to employees informing them of possible or known exposures in the workplace.

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San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for nine cities.

Testing:

Unless there is an outbreak, the California Department of Public Health no longer recommends testing for all close contacts. Testing is now recommended only for those with new COVID-19 symptoms, and close contacts who are at higher risk of severe disease or who have contact with people who are at higher risk of severe disease. MTS maintains a supply of rapid COVID-19 tests in each of the Agency's storerooms and will make rapid tests available to employees as required by Cal-OSHA regulations (e.g., if an outbreak is declared at an MTS facility). Contact your department head if you would like to request a test. Employees are encouraged to keep a supply of rapid COVID-19 tests in their homes. All health insurance offered through MTS provides free rapid COVID-19 tests, and/or reimburses participants for rapid tests they purchase. Members can call the customer service number on the back of your insurance card for further details.

Please contact Julie Seely, Human Resources Specialist, or me if you have any questions regarding our updated COVID-19 procedure.

cc: All Agency Bulletin Boards
COVID-19 Web Pages
Text to All Employees

9 RESPONDING TO VEHICLE AND FACILITY EXPOSURES

For all vehicle and facility considerations below, cleaning and disinfection shall be done using appropriate disinfectants approved by the EPA for effectiveness against the infectious disease. For example, EPA's "List N" identifies appropriate disinfectants for use against SARS-CoV-2. PPE, and other instructions required by the manufacturer of the disinfectant shall also be implemented.

9.1 VEHICLE CONSIDERATIONS

The following protocol is for cleaning and disinfecting a vehicle after a person with a virus or infectious disease was known to be in the space:

- Use appropriate lockout procedures to ensure nobody occupies/uses the vehicle while quarantined, such as placing caution/warning signs on or inside the vehicle.
- Park the vehicle in a secured designated area.
- Leave the engine running with HVAC turned on at maximum fan speed.
- Open windows and vehicle doors, if possible.
- Personnel wearing appropriate PPE (mask, gloves, etc.) can enter the vehicle for cleaning/disinfection after a minimum of 30 minutes of having the doors and/or windows open with the HVAC fan running.

9.2 FACILITY AND BUILDING CONSIDERATIONS

The following protocol is for cleaning and disinfecting areas of a facility/building after a person with a virus or infectious disease was known to be in the space:

- Use appropriate lockout procedures to ensure nobody occupies/uses the space while quarantined, such as placing caution/warning signs in the area.
- Consider factors such as the size of the room and the ventilation system design (including flowrate [air changes per hour] and location of supply and exhaust vents) when deciding how long to close off rooms or areas before beginning disinfection.
- Open windows and doors to outside areas if practicable.
- Once an appropriate amount of time has passed based on current guidance/regulations from the CDC, health department, etc., cleaning personnel wearing appropriate PPE (mask, gloves, etc.) can enter to disinfect surfaces.

10 CONTINUITY OF OPERATIONS AND RESTORING MASS TRANSIT SERVICE

10.1 TRACKING EXPENSES

MTS manages financial forecasts, inventory management and PPE stock levels using SAP. Special charge codes should be set up in the accounting module to track infectious disease-related operating and capital expenses, for:

- Reimbursement under federal grant funding such as the CARES Act;
- Documenting where a waiver of FTA regulatory requirements may be required to ensure reimbursement of expended funds; or
- Documenting damages related to infectious disease outbreaks such as COVID-19, that may be eligible if future FEMA grant opportunities become available.

10.2 LONG-TERM FINANCIAL CONSIDERATIONS

MTS will adapt its financial forecasts based on the availability of emergency funding streams such as the federal CARES Act funding for the COVID-19 pandemic. Typically, MTS maintains a healthy 12.5% reserve balance of its operating budget with the intention of bridging any financial gap during periods of unbalanced budgets, until such time as the agency is again financially sustainable.

If the agency is impacted by any infectious disease outbreak, pandemic, financial crisis or other interruption in operation, MTS has this contingency to provide continuity of operations whilst developing strategies to bring recurring revenues in alignment with recurring expenses. Once a recurring revenue stream can be improved or recurring expenses are reduced, reserves will then be replenished back up to 12.5% to maintain long term sustainable operations.

10.3 SUPPLY CHAIN RESILIENCY

The Storeroom Operations department works collaboratively to identify all PPE supplies, cleaning products, and disinfectants for the agency, to provide adequate supplies to employees and then establish sustainable inventory levels. Dedicated staff reviews all PPE materials required twice per week with the intent to ensure PPE materials are in adequate supply to prevent inventory falling below a level where they are unavailable to employees. MTS forecasts all PPE usage against the existing inventory, consumption

projections and lead time forecasts, and develops strategies for replenishment of these materials to ensure adequate supplies.

The supply chain for PPE is anticipated to be strained when there is a mass need for these types of supplies during an infectious disease outbreak. The PPE inventory at MTS will be maintained at significantly higher levels than previous to the COVID-19 pandemic, in anticipation of future supply chain breaks which would impact work tasks that rely on specific PPE.

10.4 DRIVER SHORTAGE

When Bus operators are not available to cover scheduled service due to strike, sick-out, major incident, or other driver shortage. Follow these steps to cover/cancel service:

1. Use SDTC Staff
    a. Use Voluntary Day Off operators
        i. Use all operators with Will Works
        ii. Use the beggar's list to call in day-off operators without Will Works
    b. Use Mandatory Call Back clause in union contract where practicable
    c. Once all union staff has been assigned/refused work, fill in with qualified SDTC supervisors and management
        i. Ensure with Safety Manager that all supervisors and managers are in the DMV Pull Notice program and that all certifications are current (health certificate, VTT, and license)
2. Use contracted operations staff
    a. Work with the Manager of South Bay and East County operations and the Manager of Paratransit and Minibus to find driver/supervisor availability, if any, to cover SDTC-operated routes.
        i. Ensure with each contractor that all employees covering service are in the DMV Pull Notice program and that all certifications are current (health certificate, VTT, and license)
3. Cancel service
    a. Review routes with peak trippers and cancel trippers
    b. Cancel short lines of routes where the full line is served by some blocks
    c. Cancel some blocks on routes with the most blocks, keeping a minimum level of service
    d. Cancel limited stop routes which have local routes covering all stops
    e. Cancel entire routes based on lowest average daily ridership to highest average daily ridership

When availability of bus operators increases, return services back to normal operation in reverse order.

11 RECORDKEEPING

Recordkeeping must be kept confidential in accordance with HIPAA rules and regulations unless disclosure is required or permitted by law. Records will be maintained by the Human Resources Department. MTS will report information about COVID-19 and other applicable health related cases and outbreaks at the workplace to the local health department whenever required by law. MTS will provide any related information requested by the local health department. MTS will report all information to the local health department as required by Labor Code section 6409.6.

12 PLAN REVIEW

This plan should be reviewed annually and updated when necessary.

Version No.	Issue / Review Date	Reviewer Name and Title
1	March 2021	Natalie Osborn, EHS Specialist
2	June 2022	Jared Garcia, Manager of Safety
3	January 2024	Jared Garcia, Manager of Safety
4	January 2025	Jared Garcia, Manager of Safety
4	January 2026	Jared Garcia, Manager of Safety

13 REFERENCES

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Metropolitan Transit System

Annual Safety Performance Review and Approval of Updated Agency Safety Plan

Board of Directors

Trolley

Public Transportation Agency Safety Plan (PTASP)

- 49 CFR 673 - Public Transportation Agency Safety Plan (PTASP)
- Effective Date: July 19, 2019 - Compliance Extended to July 20, 2021
- MTS Board of Directors approved the PTASP on July 30, 2020



MTS (SDTI) PTASP January 2026 Revision 4: Includes updates to Section 3.1.4.2, Pg 49 – Maintenance Inspection Program

New Security Element 6: Process for notifying, investigating, and reporting security breaches to Section 3.3.1.2, Pg 59.

This rules apply to: Recipients or sub-recipients of financial assistance under 49 U.S.C. § 5307 that operate a public transportation system

Federal Transit Administration

2024 California Public Utilities Commission (CPUC) Triennial Audit

The Commission's General Order (GO) 164-F and the Federal Transit Administration (FTA) regulations state that the State Safety Oversight Agency (SSOA) must conduct an in-person Safety and Security Review of the Metropolitan Transit System every three years.

CPUC staff inspects and reviews MTS's design, construction, operation, maintenance, and administration to assess compliance with its Public Transportation Agency Safety Plan (PTASP) safety procedures.

The CPUC Triennial resulted in six findings:

- 1 Transit Enforcement
- 1 Facilities
- 4 MOW/Track

California Public Utilities Commission

2025 Internal Safety & Security Audit (ISSA)

Seven elements were reviewed based on 49 CFR Part 673 requirements for the PTASP, MTS System Security Plan, and General Order 164-F.

The elements reviewed from the Safety and Security Master Audit Schedule included the following:

- Checklist 07: Safety Certification Process
- Checklist 08: Safety Data Acquisition
- Checklist 12: Rule Compliance
- Checklist 15: Training and Certification Program
- Checklist 20: Procurement (MTS)
- Checklist S-4: Process for Internal Security Audits
- Checklist S-5: Process for Generating Security Plans

Safety Performance Measures

3.1.1.1 Safety Performance Measure: Fatalities

- FTA formula (Fatalities/VRM x 100,000) = Rate per 100,000 miles
- The calendar year (CY) performance target for total fatalities and total fatalities rate per 100,000 revenue miles is to achieve a reduction compared to the previous three Calendar Year average.

YEAR RANGE	TARGET	3- Year Average
2017-2019	Established Base Line	0.12
2018-2020	< 0.12	0.11
2019-2021	<0.11	0.08
2020-2022	< 0.08	0.08
2021-2023	< 0.08	0.11
2022-2024	<0.11	0.12
2023-2025	<0.12	0.13

Safety Performance Measures

3.1.1.2 Safety Performance Measure: Injuries

- The CY performance target for the total number of injuries and injury rate per 100,000 revenue miles is to achieve a reduction compared to the previous three CY average.

YEAR RANGE	TARGET	3- Year Average
2017-2019	Established Base Line	3.47
2018-2020	< 3.47	3.14
2019-2021	< 3.14	2.90
2020-2022	< 2.90	2.20
2021-2023	< 2.20	1.77
2022-2024	<1.77	1.57
2023-2025	<1.57	1.65

Safety Performance Measures

3.1.1.3 Safety Performance Measure: Major Events

- The CY performance target for total number of safety events and safety events rate per 100,000 revenue miles is to achieve a reduction compared to the previous three CY average.

YEAR RANGE	TARGET	3- Year Average
2017-2019	Established Base Line	4.65
2018-2020	< 4.65	3.62
2019-2021	< 3.62	3.32
2020-2022	< 3.32	2.75
2021-2023	<2.75	2.39
2022-2024	<2.39	2.25
2023-2025	<2.25	2.29

Safety Performance Measures

3.1.1.4 Safety Performance Measure: System Reliability

- The CY performance target for system reliability rate is to achieve a reduction compared to the previous three calendar years' average. SDTI system reliability targets are calculated using a three-year average of the mean distance of train operations between failures.

YEAR RANGE	TARGET	3- Year Average
2017-2019	Establish Base Line	10,259
2018-2020	>10,259	11,530
2019-2021	>11,530	13,463
2020-2022	> 13,463	14,156
2021-2023	> 14,156	16,194
2022-2024	> 16,194	16,946
2023-2025	>16,946	16,972

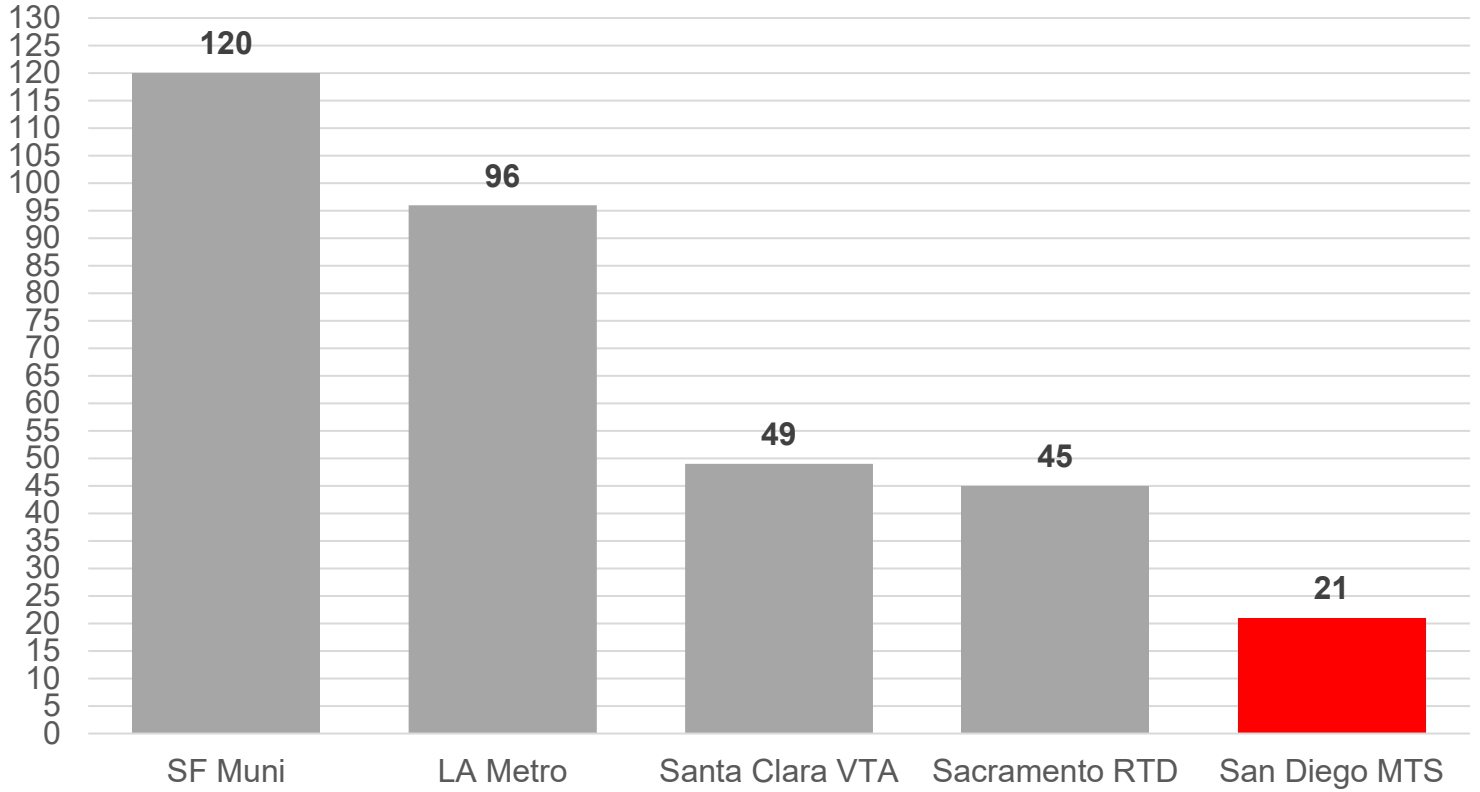
Safety Performance Measures

3.1.1.5 Safety Performance Measure: Other

- Emergency Brake Log - The CY performance target for the total number of “Emergency Brake Applications” rate per 100,000 revenue miles is to achieve a reduction compared to the previous three CY average.

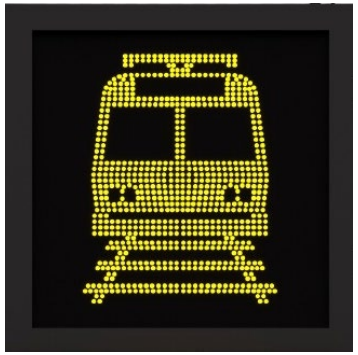
YEAR RANGE	TARGET	3- Year Average
2017-2019	Establish Base Line	11.51
2018-2020	<11.51	11.19
2019-2021	<11.19	11.01
2020-2022	<11.01	11.06
2021-2023	<11.06	10.70
2022-2024	<10.70	10.65
2023-2025	<10.65	10.74

Statewide Rail Accidents
CY 2025



Accident Prevention Campaign

- Established a Downtown Assessment Committee to evaluate Park Boulevard and C Street for potential safety enhancements.
- Coordinating with the City of San Diego on traffic signal timing, signage, and roadway marking improvements.
- Assign daily Line Supervisors to oversee street operations, provide coaching, and reinforce safe operating practices.
- Enhanced flagperson requirements at Courthouse and America Plaza Stations to reduce indicator violations that could lead to derailments, collisions, or other safety events.
- The Transportation Training Supervisors completed the FTA Transportation Safety Institute (TSI) Instructors Course for Transit Trainers.
- Train Operators complete annual Accident Prevention training focused on defensive operating skills and reducing practical drift.



Hostile Threat / Active Assailant
SDTI Yards and Maintenance Facilities (S.O.P)

Development Process:

- The Department of Homeland Security Protective Security Advisor for the San Diego District conducted two 90-minute sessions for MTS employees
- Conducted a scenario-based tabletop exercise involving Transit Enforcement, Rail Yard Supervisors, Train Operators, Maintenance Supervisors, Rail Safety, and Marketing personnel.
- Developed an After-Action Report to identify lessons learned and improvement opportunities
- This Standard Operating Procedure establishes guidelines for responding to a hostile threat or active assailant incidents with the goal of protecting personnel, ensuring rapid notification, and coordinating with responding law enforcement agencies.

ECPD – SWAT TEAM



FTA TRANSPORTATION SAFETY INSTITUTE (TSI)

MTS hosted the TSI Rail Incident Investigation and Transit System Security courses, attended by employees from peer agencies and multiple MTS departments including Light Rail Vehicle Maintenance, Rail Transportation, Transit Enforcement, Bus Safety, and Rail Safety.

Transit Rail Incident Investigation: This course provides participants with the knowledge and skills necessary to investigate transit incidents and comply with State Safety Oversight requirements under 49 CFR Part 674.

Transit System Security: This course enhanced employee understanding of system security, its relationship to Safety Management Systems (SMS), and strategies to reduce crime and improve customer and employee safety.







FLAGPERSON APPRECIATION DAY



Bus

Bus Performance Measures

- Prior goal was to improve upon 3-year baseline (2018-2020)
- Bipartisan Infrastructure Law (BIL) changed to 3-year rolling average, CY 2022 - CY 2024
- Performance targets do not consider crimes, fault, or preventability
- All rates are based on vehicle revenue miles
- 24.2 million revenue miles travelled in CY 2025 for all bus modes

Performance Measure – Fatalities

Mode	Total			Rate		
	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	0	0.7	0	0	0.007	0
Fixed (Transdev)	0	0.3	2	0	0.003	0.017
Fixed Total	**0**	**1**	**2****	**0**	**0.005**	**0.010**
Paratransit	**0**	**0**	**0**	**0**	**0**	**0**

Fatality - Death confirmed within 30 days of the event (including suicides).

Rate per 100,000 vehicle revenue miles.

*Baseline total was aspirational goal.

**Both accidents were non-preventable

Performance Measure – Major Events

Mode	Total			Rate		
	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	21.3	24.7	33	0.22	0.27	0.36
Fixed (Transdev)	18.3	22.7	27	0.17	0.21	0.23
Fixed Total	**39.7**	**47.3**	**60**	**0.19**	**0.24**	**0.29**
Paratransit	**2.7**	**2.7**	**2**	**0.07**	**0.09**	**0.06**

Major Event – Previously called “Safety Event.” Changed due to updated National Safety Plan.

All safety and security events defined by the NTD. Collisions that meet NTD thresholds for injuries, fatalities, property damage; vehicle towed.

Rate per 100,000 vehicle revenue miles.

Performance Measure – Injuries

Mode	Total			Rate		
	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025	*Baseline CY 18 - 20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	56.3	39	65	0.58	0.43	0.71
Fixed (Transdev)	57.3	46.7	56	0.52	0.43	0.48
Fixed Total	**113.7**	**85.7**	**121**	**0.55**	**0.43**	**0.58**
Paratransit	**2.7**	**5.3**	**10**	**0.07**	**0.18**	**0.29**

Injury - Any damage or harm to persons that requires immediate medical attention away from the scene because of a reportable event must be reported as an injury, whether or not the person appears to be injured.

Rate per 100,000 vehicle revenue miles.

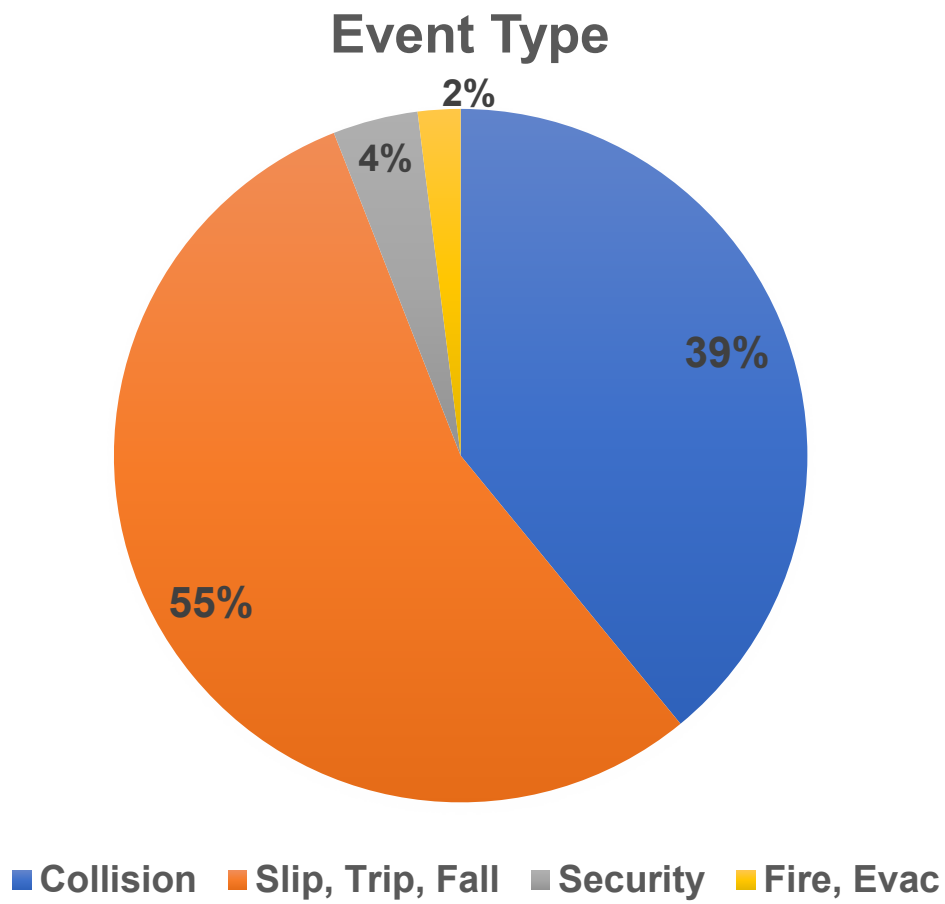
Performance Measure – System Reliability

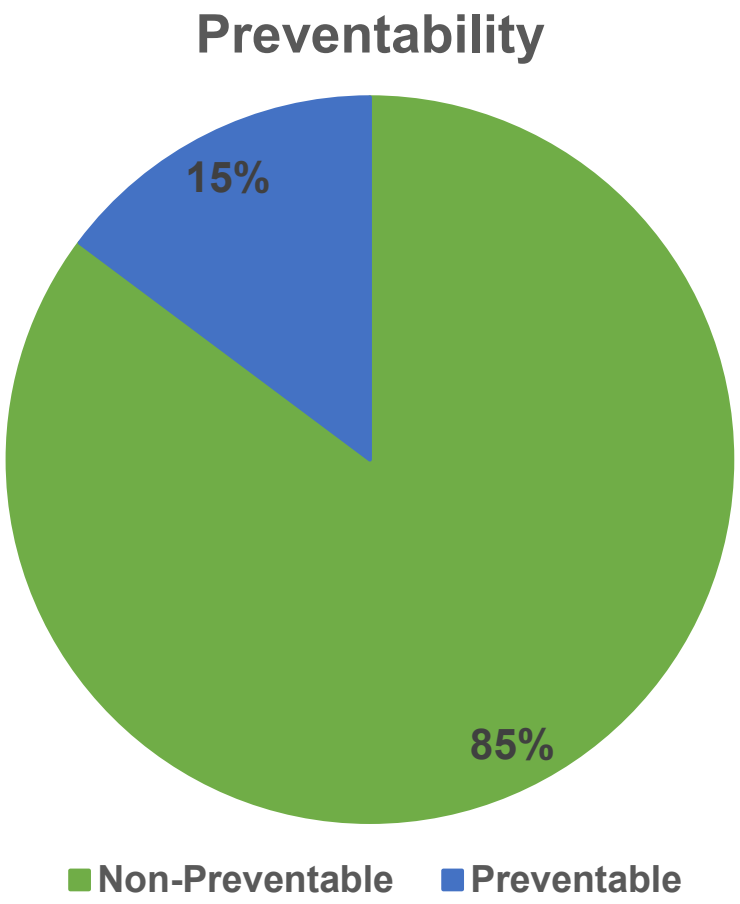
Mode	Rate		
	*Baseline CY 18 -20	3-Year Avg CY 22 - 24	CY 2025
Fixed (MTS)	4,700	6,607	6,154
Fixed (Transdev)	6,000	5,647	4,902
Fixed Total	**5,600**	**6,045**	**5,383**
Paratransit	**32,000**	**47,002**	**58,545**

System Reliability - Distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures.

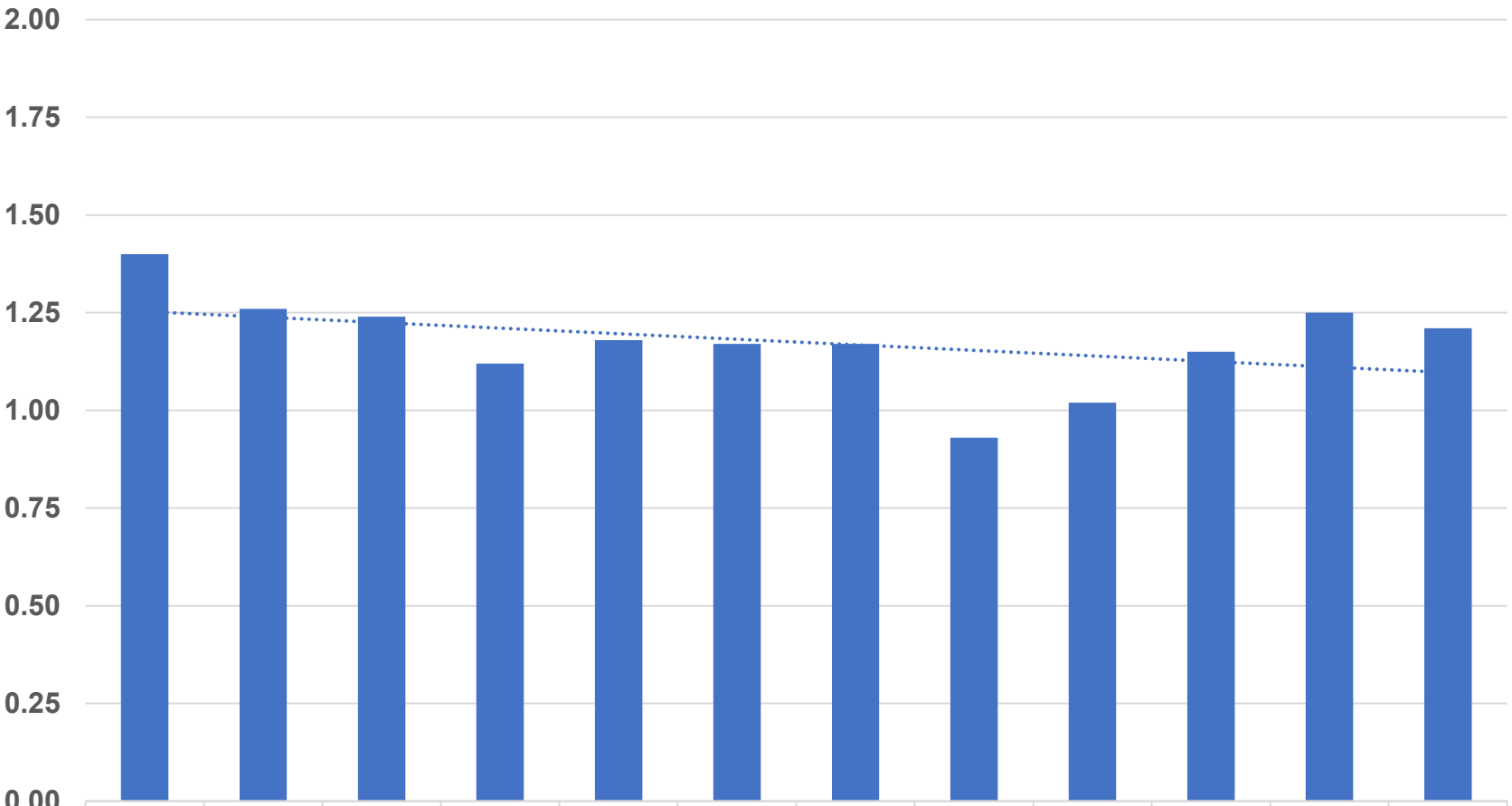
* Rounded to nearest hundred miles.

Bus Event Types & Preventability



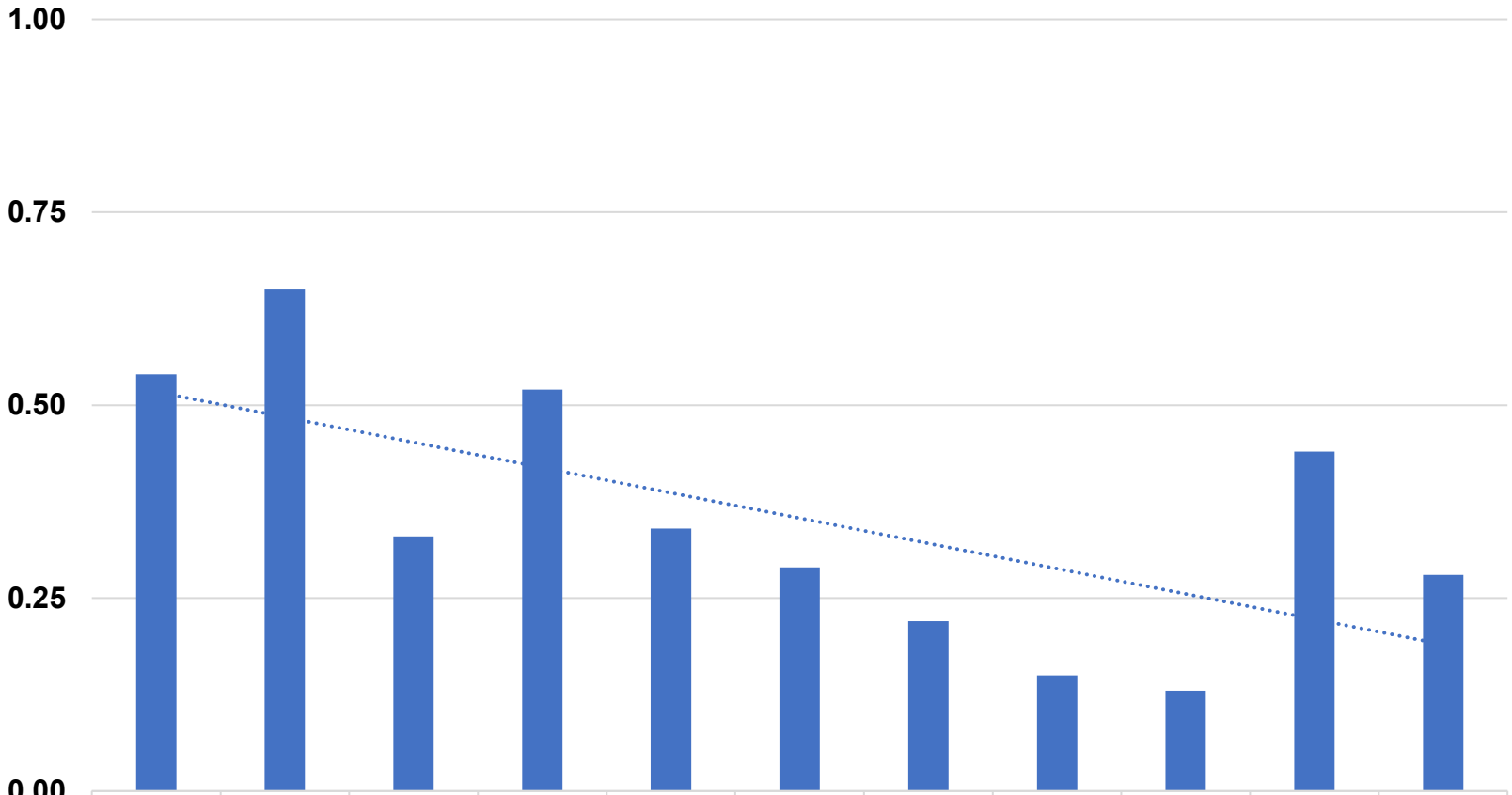


Fixed Route Preventable Accidents



	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Rate	1.4	1.26	1.24	1.12	1.18	1.17	1.17	0.93	1.02	1.15	1.25	1.21

Rapid Preventable Accidents



	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Rate	0.54	0.65	0.33	0.52	0.34	0.29	0.22	0.15	0.13	0.44	0.28

CHP Annual Terminal Inspections

- Vehicle inspection and repair history
- Commercial licensing and medical exams
- Training records, driving hours, drug & alcohol testing
- All 5 terminals successfully passed their inspection

Bus – Employee Safety & Service Awards



MILLION MILE AWARDS

14 (14 prior year)

The National Safety Council's award recognizes Bus Operators who have driven 25,000 hours without a preventable accident.

SAFE DRIVER AWARDS

274 (275 prior year)

Bus Operators who have driven the entire year without a preventable accident and missed fewer than 15 days from work.





MAINTENANCE SAFETY AWARDS

126 (125 prior year)

Recognizes staff who have had no preventable accidents, unsafe acts, or chargeable property damage incidents; and no disciplinary actions pertaining to safety or property damage.

SUPPORT SERVICES AWARDS

29 (22 prior year)

Recognizes staff who have had no valid customer complaints, no discipline, including suspension or letters of reprimand, and have received at least one valid customer compliment.



Bus – APTA Gold Safety Award 2026



American Public Transportation Association

Updates to Risk Reduction Program





Retrofit of PA System on Current Fleet



New Microphones



Future Narrow A-Pillar

Measures to reduce visibility impairments for bus operators that contribute to accidents, including retrofits to buses in revenue service and specifications for future procurements that reduce visibility impairments

Updates to Agency Safety Plan

- Added Tunnel Inspection Program
- Added Process for Notifying, Investigating, and Reporting Security Breaches
- Updated Safety Performance Measures
- Updated Risk Reduction Program

Staff Recommendation

That the San Diego Metropolitan Transit System (MTS) Board of Directors approve updates to the Public Transportation Agency Safety Plan (PTASP)

Metropolitan Transit System

Agenda Item No. 22

MEETING OF THE SAN DIEGO METROPOLITAN TRANSIT SYSTEM
BOARD OF DIRECTORS

June 18, 2026

SUBJECT:

Fiscal Year (FY) 2026 Q3 Performance Monitoring Report (Brent Boyd and Matthew Grace)

INFORMATIONAL ONLY

Budget Impact

None.

DISCUSSION:

MTS Board Policy No. 42, "Transit Service Evaluation and Adjustment," establishes a process for evaluating existing transit services to achieve the objective of developing a customer-focused, competitive, integrated, and sustainable system. Additionally, federal Title VI guidance requires that certain performance measures be evaluated and reported to the Board periodically.

Staff from the Planning and Scheduling Department will provide a summary of service performance for Q3 (January-March) in FY26.

/s/ Sharon Cooney
Sharon Cooney
Chief Executive Officer

Key Staff Contact: Julia Tuer, 619.557.4515, Julia.Tuer@sdmts.com

Attachment: A. FY 2026 Q3 Performance Monitoring Report

San Diego Metropolitan Transit System (MTS) is a California public agency comprised of San Diego Transit Corp., San Diego Trolley, Inc. and San Diego and Arizona Eastern Railway Company (nonprofit public benefit corporations). MTS member agencies include the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, Santee, and the County of San Diego. MTS is also the For-Hire Vehicle administrator for multiple cities in San Diego County.

Date: 05/13/26

San Diego Metropolitan Transit System
POLICY 42 PERFORMANCE MONITORING REPORT
FY 2026: QUARTER 3 - JANUARY 2026 - MARCH 2026

OBJECTIVE | Develop a Customer-Focused and Competitive System

The following measures of productivity and service quality are used to ensure that services are focused on providing competitive and attractive transportation that meets our customers' needs.

Total Passengers

Route Categories	FY 2025 Q3	FY 2026 Q3	% Change FY25 - FY26
System Total	**19,379,671**	**19,705,119**	**1.7%**
Fixed Route (Bus + Rail) Total	**19,294,256**	**19,612,197**	**1.6%**
Light Rail (Blue, Orange, Green, & Copper)	**9,941,143**	**9,933,226**	**-0.1%**
Bus	**9,353,113**	**9,678,971**	**3.5%**
Urban Frequent	*5,800,749*	*5,949,434*	*2.6%*
Urban Standard	*1,453,477*	*1,475,766*	*1.5%*
Rapid	*1,794,827*	*1,921,705*	*7.1%*
Express	*122,973*	*143,755*	*16.9%*
Circulator	*137,587*	*141,327*	*2.7%*
Premium/Rapid Express	*28,714*	*31,633*	*10.2%*
Rural	*14,786*	*15,351*	*3.8%*
Demand Response Total	**85,142**	**92,922**	**9.1%**
MTS Access	*71,079*	*64,305*	*-9.5%*
Access Taxi	*14,063*	*28,617*	*103.5%*

NOTES: Sub-Contractors for Taxi (Care7, UZURV) ended in Q4 FY2024, reducing "Access Taxi" trips in FY2025.
Access trips increased to offset the difference in service.
Express Route 910 started service Jan 2025.

Average Weekday Passengers

Route Categories	FY 2025 Q3	FY 2026 Q3	% Change FY25 - FY26
System Total	**246,659**	**255,339**	**3.4%**
Fixed Route (Bus + Rail) Total	**245,443**	**254,008**	**3.4%**
Light Rail (Blue, Orange, Green, & Copper)	**121,858**	**123,217**	**1.1%**
Bus	**123,585**	**130,790**	**5.5%**
Urban Frequent	*75,260*	*78,796*	*4.5%*
Urban Standard	*19,904*	*20,694*	*3.8%*
Rapid	*23,971*	*26,444*	*9.4%*
Express	*1,651*	*1,971*	*16.2%*
Circulator	*2,101*	*2,128*	*1.3%*
Premium/Rapid Express	*462*	*510*	*9.5%*
Rural	*236*	*248*	*4.5%*
Demand-Resp. Subtotal	**1,216**	***1,331***	**8.6%**
Demand-Resp. (MTS Access)	*1,018*	*906*	*-12.3%*
Demand-Resp. (Access Taxi)	*199*	*425*	*53.3%*

Passengers Per Revenue Hour

The 'passengers per revenue hour' metric shows how any added or removed **revenue hours** (in-service hours plus layover hours) relate to ridership increases or decreases. Increasing riders per revenue hour would indicate that the system is more efficient, for example, carrying more passengers with the same number of buses.

Route Categories	FY 2025 Q3	FY 2026 Q3	% Change FY25 - FY26
System Total	**33.1**	**34.4**	**3.8%**
Fixed Route (Bus + Rail) Total	**36.5**	**37.7**	**3.4%**
Light Rail (Blue, Orange, Green, & Copper)	**163.9**	**162.1**	**-1.2%**
Bus	**20.0**	**21.1**	**5.3%**
Urban Frequent	*21.0*	*22.2*	*5.2%*
Urban Standard	*14.6*	*15.0*	*2.7%*
Rapid	*27.9*	*30.0*	*7.1%*
Express	*11.5*	*13.1*	*11.9%*
Circulator	*9.7*	*10.6*	*8.1%*
Premium/Rapid Express	*15.7*	*17.5*	*10.4%*
Rural	*11.9*	*12.3*	*2.9%*
Demand-Resp. Subtotal	**1.5**	***1.8***	**14.6%**
Demand-Resp. (MTS Access)	*1.4*	*1.4*	*1.9%*
Demand-Resp. (Access Taxi)	*2.6*	*3.6*	*28.5%*

Date: 05/13/26

San Diego Metropolitan Transit System
POLICY 42 PERFORMANCE MONITORING REPORT
FY 2026: QUARTER 3 - JANUARY 2026 - MARCH 2026

Passengers per In-Service Hour

The 'passengers per in-service hour' measure is related to the above 'passengers per revenue hour,' but shows how many passengers are carried while the vehicle is in-service picking up passengers, excluding layover time. Analyzing this figure helps MTS to understand how effective it is at providing the right level of service (instead of how efficiently MTS is grouping trips and breaks together for a vehicle to operate [revenue hours]).

Route Categories	FY 2025 Q3	FY 2026 Q3	% Change FY25 - FY26
System	**41.4**	**43.0**	**3.8%**
Fixed Route (Bus + Rail) Total	**46.7**	**48.4**	**3.4%**
Light Rail (Blue, Orange, Green, & Copper)	**197.4**	**194.7**	**-1.4%**
Bus	**25.9**	**27.3**	**5.3%**
Urban Frequent	*26.7*	*28.2*	*5.1%*
Urban Standard	*19.9*	*20.5*	*3.1%*
Rapid	*35.7*	*38.4*	*7.0%*
Express	*14.1*	*15.9*	*11.4%*
Circulator	*13.6*	*14.8*	*7.8%*
Premium/Rapid Express	*18.2*	*21.0*	*13.1%*
Rural	*15.5*	*14.7*	*-5.3%*
Demand-Resp. Subtotal	**1.5**	***1.8***	**13.1%**
Demand-Resp. (MTS Access)	*1.4*	*1.4*	*1.3%*
Demand-Resp. (Access Taxi)	*2.6*	*3.6*	*27.6%*

NOTES: The Passengers per In-Service Hour metric generally followed the same trends as Passengers per Revenue Hour.

On-Time Performance

On-time performance (OTP) is measured at each bus & Trolley timepoint for every trip; departing timepoints within 0-5 minutes of the scheduled time are considered to be "on-time." OTP is measured by service change period in order to show the results of scheduling changes. MTS's goal for on-time performance is 85% for Urban Frequent and Rapid bus routes, and 90% for Trolley and all other bus route categories. Each route is continually evaluated to determine if performance below the target is a result of issues that MTS controls, such as driver performance or scheduling, or situations outside MTS' direct control, such as construction, traffic congestion, and passenger issues. **Performance of fixed bus routes is heavily impacted by construction, stop signs and stop lights, and traffic when they travel through high density corridors.**

Route Categories	Quarter				*GOAL*
	Q4 FY25	Q1 FY26	Q2 FY26	Q3 FY26	
System	**88.8%**	**87.0%**	**87.0%**	**87.3%**	
Light Rail (Blue, Orange, Green, & Copper)	**96.0%**	**95.1%**	**94.1%**	**93.1%**	*90.0%*
Bus	**88.0%**	**87.0%**	**87.0%**	**86.8%**	
Urban Frequent	87.1%	85.9%	86.1%	85.7%	*85.0%*
Urban Standard	89.4%	88.4%	87.6%	88.1%	*90.0%*
Rapid	89.6%	90.1%	89.8%	88.6%	*85.0%*
Express	87.0%	87.1%	86.9%	89.7%	*90.0%*
Circulator	90.5%	87.6%	88.3%	87.8%	*90.0%*
Premium/Rapid Express	89.1%	88.9%	88.3%	88.7%	*90.0%*
Rural	N/A	N/A	N/A	N/A	
Demand-Resp. (Access & Taxi)	N/A	N/A	N/A	N/A	

NOTES: (Early Trips + On Time Trips)/Total Trips

Date: 05/13/26

San Diego Metropolitan Transit System
POLICY 42 PERFORMANCE MONITORING REPORT
FY 2026: QUARTER 3 - JANUARY 2026 - MARCH 2026

OBJECTIVE | Develop a Sustainable System

The following measures are used to ensure that transit resources are deployed efficiently and do not exceed budgetary constraints. These resources may be increased over the budgeted amounts in order to respond to heavy passenger loads, special events, or unplanned detours due to construction or route changes. They may be lower than budgeted if underperforming services are reduced, or if not all of the planned capacity is required to meet the ridership demand.

Scheduled In-Service Hours (Weekly Total)

Operator	Q3 FY25	Q3 FY26	# Diff	% Diff
System	**32,871**	**31,968**	**(903)**	**-2.7%**
Directly-Operated Bus	12,255	11,926	(329)	-2.7%
Contracted Fixed-Route Bus	16,631	16,057	(574)	-3.5%
Light Rail	3,985	3,985	0	0.0%

Q3 = Jan Service Period. Light Rail hours increased due to SB125 funding for 15 min frequencies

Scheduled In-Service Miles (Weekly Total)

Operator	Q3 FY25	Q3 FY26	# Diff	% Diff
System	**493,097**	**483,768**	**(9,329)**	**-1.9%**
Directly-Operated Bus	178,188	174,436	(3,752)	-2.1%
Contracted Fixed-Route Bus	229,598	224,014	(5,584)	-2.4%
Rail	85,311	85,318	7	0.0%

Q3 = Jan Service Period

Scheduled In-Service Speed (MPH) (Weekday)

Operator	Q3 FY25	Q3 FY26	% Change FY25 - FY26
Directly-Operated Bus	14.5	14.6	0.6%
Contracted Fixed-Route Bus	13.8	13.8	0.3%
Rail	21.4	21.4	0.1%

Contracted Fixed-Route Bus = Avg weekday speed across Southbay, East County and Copley Garages

Scheduled In-Service Miles/Total Miles (Weekday)

The 'in-service miles per total miles' ratio is only calculated for MTS in-house operations, as contractors are responsible for bus and driver assignments (runcutting) for MTS Contract Services.

Operator	Q3 FY25	Q3 FY26	% Change FY25 - FY26
Directly-Operated Bus	87.0%	86.9%	-0.1%
Contracted Fixed-Route Bus	N/A	N/A	N/A
Rail	96.7%	96.7%	0.0%

Scheduled In-Service Hours/Total Hours (Weekday)

As with the mileage statistic, 'in-service hours' per total hours are only calculated for MTS in-house operations.

Operator	Q3 FY25	Q3 FY26	% Change FY25 - FY26
Directly-Operated Bus	74.8%	74.8%	0.0%
Contracted Fixed-Route Bus	N/A	N/A	N/A
Rail	80.3%	80.3%	0.0%

Scheduled Weekday Peak-Vehicle Requirement

This measure shows the maximum number of buses and railcars that are scheduled in service at any one time (a weekday peak period) in order to demonstrate the levels of service that are planned.

Operator	Q3 FY25	Q3 FY26	# Change FY25 - FY26
Directly-Operated Bus	205	207	2
Contracted Fixed-Route Bus	286	286	0
Rail	116	116	0

NOTES: Rail includes 3-car Preuss School PM Peak Trip.

San Diego Metropolitan Transit System
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FY 2026 ROUTE STATISTICS (Q3)

BASE STATISTICS

Route	Cat	Jurisdiction (#=SD Dist.)	Q3 Passengers	FY25 - 26 % Change	Avg. Wkdy. Psgrs.	Psgrs./ Rev. Hr.	Psgrs./ InSvc. Hr.	Cost/ Psgr.	Average Fare	Subsidy/ Psgr.	Revenue	Expense	Total Subsidy	Farebox Recovery	Budgeted Rev.Svc. Hours	Budgeted Rev.Svc. Miles
1	Frq	3,7,9,**LM**	237,665	(0.1%)	3,204	21.3	26.2	$ 4.27	$ 1.20	$ 3.07	$269,350	$1,015,695	$746,345	28.0%	11,177	109,129
2	Frq	3	147,663	7.8%	1,930	19.8	25.6	$ 8.72	$ 1.20	$ 7.52	$177,497	$1,287,280	$1,109,783	13.8%	7,456	58,373
3	Frq	3,4,8,9	272,907	1.8%	3,729	20.5	24.5	$ 3.58	$ 1.20	$ 2.38	$258,925	$976,381	$717,457	33.5%	13,288	104,905
4	Std	3,4,8,9	127,332	10.2%	1,723	21.0	25.7	$ 8.24	$ 1.20	$ 7.04	$153,058	$1,049,195	$896,137	14.6%	6,077	64,229
5	Frq	3,4,8,9	115,190	1.1%	1,603	20.7	30.2	$ 3.48	$ 1.20	$ 2.28	$106,366	$401,098	$294,731	34.4%	5,554	43,095
6	Frq	3,7	50,627	(3.8%)	636	15.5	19.0	$ 11.14	$ 1.20	$ 9.94	$60,856	$563,876	$503,020	10.8%	3,266	27,913
7	Frq	3,4,9	481,783	7.1%	5,939	30.1	36.9	$ 5.73	$ 1.20	$ 4.53	$579,123	$2,761,195	$2,182,072	21.0%	15,993	124,242
8	Frq	2,3	143,850	9.8%	1,634	18.1	24.7	$ 9.54	$ 1.20	$ 8.34	$172,914	$1,372,051	$1,199,138	12.6%	7,947	82,431
9	Frq	2,3	58,289	7.5%	618	15.5	22.5	$ 11.11	$ 1.20	$ 9.91	$70,066	$647,784	$577,718	10.8%	3,752	35,133
10	Frq	2,3,4,9	249,323	0.5%	3,387	25.1	32.0	$ 6.88	$ 1.20	$ 5.68	$299,696	$1,715,280	$1,415,583	17.5%	9,935	85,864
11	Frq	3,9	124,388	2.1%	1,632	15.9	19.6	$ 10.88	$ 1.20	$ 9.68	$149,519	$1,353,923	$1,204,403	11.0%	7,842	76,326
12	Frq	3,4,8,9	221,494	0.4%	3,000	23.9	31.3	$ 7.21	$ 1.20	$ 6.01	$266,245	$1,596,842	$1,330,597	16.7%	9,249	93,837
13	Frq	4,7,9,**NC**	446,869	(2.9%)	6,090	30.5	36.7	$ 5.66	$ 1.20	$ 4.46	$537,155	$2,529,843	$1,992,689	21.2%	14,653	145,419
14	Circ	7,9,**LM**	12,172	(5.5%)	196	7.7	9.8	$ 9.98	$ 1.24	$ 8.74	$15,439	$121,515	$106,076	12.4%	1,582	15,951
18	Circ	3,7	4,673	13.8%	75	7.3	9.7	$ 15.83	$ 1.24	$ 14.59	$9,401	$73,994	$64,592	7.8%	643	9,713
20	Exp	3,5,6,7	102,934	8.8%	1,407	12.0	14.7	$ 14.33	$ 1.20	$ 13.13	$123,731	$1,475,469	$1,351,738	8.4%	8,546	160,300
25	Circ	6,7	13,655	(4.2%)	220	8.9	11.9	$ 10.70	$ 1.24	$ 9.46	$18,566	$146,128	$127,562	11.6%	1,533	19,182
27	Std	2,6	73,797	8.4%	917	14.5	20.4	$ 5.65	$ 1.20	$ 4.45	$110,619	$417,134	$306,515	21.2%	5,104	44,818
28	Std	2,3	65,627	5.2%	867	22.1	35.3	$ 2.90	$ 1.20	$ 1.70	$50,445	$190,222	$139,778	41.3%	2,967	20,438
30	Frq	1,2,3	324,684	18.2%	3,927	23.2	27.2	$ 7.45	$ 1.20	$ 6.25	$390,283	$2,417,275	$2,026,992	16.1%	14,001	176,412
31	Std	1,6	20,229	(3.4%)	326	17.9	22.5	$ 9.64	$ 1.20	$ 8.44	$24,316	$195,095	$170,779	12.5%	1,130	14,424
35	Frq	2,3	94,725	3.5%	1,166	18.2	27.7	$ 3.13	$ 1.20	$ 1.93	$78,570	$296,279	$217,709	38.3%	5,199	31,833
41	Frq	1,6,7	213,509	3.0%	3,069	23.6	30.1	$ 7.31	$ 1.20	$ 6.11	$256,647	$1,561,621	$1,304,975	16.4%	9,045	115,017
43	Frq	2,6	113,865	6.2%	1,493	19.0	27.5	$ 9.08	$ 1.20	$ 7.88	$136,870	$1,033,484	$896,614	13.2%	5,986	60,902
44	Frq	2,3,6,7	209,148	5.9%	2,851	24.9	33.1	$ 6.92	$ 1.20	$ 5.72	$251,404	$1,448,190	$1,196,785	17.4%	8,388	87,229
60	Exp	1,3,4,6,9	13,171	8.7%	212	15.3	18.5	$ 11.26	$ 1.20	$ 10.06	$15,832	$148,307	$132,474	10.7%	859	14,453
83	Circ	3	4,408	(8.9%)	71	5.6	7.6	$ 10.95	$ 1.24	$ 9.70	$6,131	$48,252	$42,122	11.3%	785	6,334
84	Circ	2	3,892	0.7%	63	5.3	7.2	$ 16.99	$ 1.24	$ 15.75	$8,400	$66,117	$57,716	7.3%	730	8,679
88	Circ	3,7	26,222	31.1%	316	19.7	30.9	$ 4.45	$ 1.20	$ 3.25	$30,921	$116,602	$85,680	27.0%	1,332	12,528
105	Std	1,2,3,6	47,271	(7.1%)	693	12.7	16.7	$ 13.64	$ 1.20	$ 12.44	$56,822	$644,848	$588,027	8.8%	3,735	44,647
110	Exp	3,6	5,137	8.5%	83	11.3	12.9	$ 15.33	$ 1.20	$ 14.13	$6,175	$78,728	$72,554	7.8%	456	9,803
115	Std	7,9,**LM,EC**	51,971	(2.3%)	760	12.9	17.8	$ 9.35	$ 1.34	$ 8.01	$109,548	$485,762	$376,214	14.3%	4,040	47,542
120	Frq	3,6,7	108,341	(10.7%)	1,418	15.2	19.3	$ 11.38	$ 1.20	$ 10.18	$130,230	$1,232,722	$1,102,492	10.6%	7,140	74,175
201^	Rpd	1	413,676	13.5%	6,126	73.8	97.2	$ 2.34	$ 0.61	$ 1.73	$253,740	$968,222	$714,483	26.2%	5,608	49,553
202^	Rpd	1	358,361	5.4%	5,241	71.4	90.6	$ 2.42	$ 0.61	$ 1.81	$219,811	$866,013	$646,203	25.4%	5,016	46,764
204^	Rpd	1	18,587	3.2%	300	18.9	37.9	$ 9.14	$ 0.61	$ 8.53	$11,401	$169,888	$158,487	6.7%	984	6,956
215^	Rpd	3,9	378,678	6.7%	4,743	24.7	31.0	$ 7.00	$ 1.16	$ 5.84	$438,015	$2,652,080	$2,214,065	16.5%	15,361	143,279
225^	Rpd	3,8,**CV**	164,178	5.6%	2,158	17.5	21.7	$ 9.77	$ 1.39	$ 8.38	$228,324	$1,603,842	$1,375,518	14.2%	9,395	176,633
227~	Rpd	8,**IB**	216,893	(1.6%)	2,802	25.4	36.0	$ 6.23	$ 1.17	$ 5.05	$254,530	$1,350,344	$1,095,814	18.8%	8,528	154,141
235^	Rpd	3,5,6,9,**Esc**	321,795	7.7%	4,275	19.8	24.2	$ 8.72	$ 1.19	$ 7.53	$382,881	$2,805,566	$2,422,684	13.6%	16,250	382,442
237^	Rpd	1,6	49,537	15.6%	799	17.3	22.4	$ 9.98	$ 1.47	$ 8.51	$72,944	$494,470	$421,526	14.8%	2,864	35,490
280	RpEx	3,5,**Esc**	15,760	19.0%	254	16.7	18.7	$ 18.38	$ 3.32	$ 15.06	$60,174	$289,659	$229,485	18.0%	946	28,939
290	RpEx	3,5	15,873	2.6%	256	18.5	23.9	$ 13.57	$ 3.32	$ 10.25	$44,760	$215,460	$170,700	24.4%	859	21,526
701	Frq	**CV**	81,216	1.2%	1,185	16.4	20.5	$ 5.85	$ 1.20	$ 4.65	$126,033	$475,258	$349,225	20.5%	4,951	51,063
704	Std	**CV**	88,249	1.6%	1,273	17.1	21.8	$ 5.84	$ 1.20	$ 4.64	$136,715	$515,540	$378,825	20.5%	5,166	55,391
705	Std	**CV,NC,Cty**	42,814	2.1%	626	15.7	23.7	$ 5.39	$ 1.20	$ 4.19	$61,144	$230,569	$169,425	22.3%	2,733	24,773
707	Std	**CV**	22,900	4.9%	369	13.7	21.0	$ 6.71	$ 1.20	$ 5.52	$40,774	$153,756	$112,982	17.8%	1,672	16,520
709	Frq	**CV**	171,854	4.1%	2,510	22.9	29.3	$ 4.48	$ 1.20	$ 3.29	$204,358	$770,616	$566,258	26.7%	7,500	82,797
712	Frq	**CV**	133,356	3.3%	1,937	24.9	32.8	$ 3.86	$ 1.20	$ 2.66	$136,614	$515,158	$378,545	31.0%	5,345	55,350
815	Frq	**EC**	79,191	(4.4%)	1,084	19.0	27.4	$ 3.80	$ 1.34	$ 2.46	$67,885	$301,019	$233,134	35.3%	4,162	29,461
816	Std	**EC,Cty**	26,034	3.5%	420	12.1	17.3	$ 9.11	$ 1.34	$ 7.77	$53,463	$237,067	$183,604	14.7%	2,156	23,202
832	Std	**ST**	8,863	(12.8%)	130	12.9	21.7	$ 7.91	$ 1.34	$ 6.57	$15,812	$70,113	$54,301	16.9%	685	6,862
833	Std	**EC,ST**	16,314	(18.3%)	227	9.0	11.4	$ 8.37	$ 1.24	$ 7.13	$17,357	$136,614	$119,256	14.8%	1,818	17,933
834	Std	**ST**	7,103	16.7%	115	10.8	18.8	$ 8.70	$ 1.34	$ 7.36	$13,941	$61,816	$47,875	15.4%	660	6,050
838	Std	**Cty**	23,770	1.3%	283	9.4	13.9	$ 12.24	$ 1.24	$ 11.00	$36,975	$291,015	$254,041	10.1%	2,532	38,201
848	Std	**EC,Cty**	63,964	(2.6%)	869	16.5	21.9	$ 6.02	$ 1.34	$ 4.68	$86,782	$384,813	$298,031	22.3%	3,874	37,662
851	Circ	**LM,Cty**	14,401	(19.2%)	232	16.8	22.4	$ 7.07	$ 1.34	$ 5.73	$22,959	$101,807	$78,848	19.0%	856	9,964
852	Std	4,9,**LM**	63,307	8.2%	834	13.8	18.2	$ 6.68	$ 1.34	$ 5.34	$95,416	$423,098	$327,682	20.0%	4,571	41,409
854	Std	7,**LM**	15,793	8.8%	255	11.9	18.7	$ 9.46	$ 1.34	$ 8.12	$33,679	$149,339	$115,661	14.2%	1,331	14,616
855	Std	**LM,Cty**	48,681	(13.2%)	700	21.8	33.0	$ 4.43	$ 1.34	$ 3.09	$48,621	$215,600	$166,979	30.3%	2,237	21,101
856	Std	4,9,**LG,Cty**	114,912	(2.6%)	1,697	20.8	25.7	$ 5.37	$ 1.34	$ 4.03	$139,235	$617,404	$478,169	24.9%	5,529	60,426
864	Std	**EC,Cty**	65,399	(4.8%)	863	18.5	27.4	$ 5.09	$ 1.34	$ 3.75	$75,019	$332,652	$257,633	26.3%	3,530	32,557
872	Std	**EC**	8,933	(3.8%)	144	10.1	21.0	$ 5.28	$ 1.34	$ 3.94	$10,629	$47,133	$36,504	25.4%	886	4,613
874	Std	**EC**	31,972	0.6%	437	15.2	19.4	$ 6.44	$ 1.34	$ 5.10	$46,456	$205,996	$159,540	20.8%	2,102	20,161
875	Std	**EC**	28,957	(3.4%)	391	13.4	17.0	$ 7.24	$ 1.34	$ 5.90	$47,264	$209,582	$162,318	18.5%	2,154	20,512

TITLE VI MONITORING (FY 2026 Q3 Statistics) ~

Route	Minority Route	On-Time Perf. Goal	On-Time Perf. Actual	Weekday Headway Goal	Weekday Headway Peak	Weekday Headway Base	Vehicle Load Factor ~~ Goal	Vehicle Load Factor ~~ % trips over VLF	Vehicle Load Factor ~~ > 20%?
1	✓	85%	80%	15 min.	15	15	1.50	0%	No
2		85%	92%	15 min.	12	15	1.50	0%	No
3	✓	85%	83%	15 min.	12	12	1.50	0%	No
4	✓	85%	91%	30 min.	30	30	1.50	0%	No
5	✓	85%	91%	15 min.	12	12	1.50	0%	No
6		85%	89%	15 min.	15	15	1.50	0%	No
7	✓	85%	83%	15 min.	10	10	1.50	0%	No
8		85%	83%	15 min.	20	20	1.50	0%	No
9		85%	94%	15 min.	20	20	1.50	0%	No
10	✓	85%	84%	15 min.	12	15	1.50	0%	No
11		85%	81%	15 min.	15	15	1.50	0%	No
12	✓	85%	92%	15 min.	7.5/15	15	1.50	0%	No
13	✓	85%	87%	15 min.	12	12	1.50	0%	No
14		90%	82%	60 min.	60	60	1.00	0%	No
18		90%	94%	60 min.	30	30	1.00	0%	No
20	✓	90%	92%	30 min.	15/30	30	1.50	0%	No
25		90%	89%	60 min.	60	60	1.00	0%	No
27		85%	84%	30 min.	30	30	1.50	0%	No
28		85%	87%	30 min.	15/30	30	1.50	0%	No
30		85%	77%	15 min.	15	15	1.50	0%	No
31		85%	93%	30 min.	30	-	1.50	0%	No
35		85%	92%	15 min.	15	15	1.50	0%	No
41		85%	88%	15 min.	7.5/15	15	1.50	0%	No
43	✓	85%	92%	15 min.	15	15	1.50	0%	No
44	✓	85%	91%	15 min.	7.5/15	15	1.50	0%	No
60	✓	90%	91%	30 min.	20/30	-	1.50	0%	No
83		90%	91%	60 min.	60	60	1.00	0%	No
84		90%	91%	60 min.	60	60	1.00	0%	No
88		90%	88%	60 min.	30	30	1.00	0%	No
105		85%	91%	30 min.	30	30	1.50	0%	No
110	✓	90%	97%	30 min.	20/30	-	1.50	0%	No
115		85%	85%	30 min.	30	30	1.50	0%	No
120	✓	85%	85%	15 min.	15/30	15/30	1.50	0%	No
201^	✓	0%	96%	15 min.	5	10	1.50	0%	No
202^	✓	0%	93%	15 min.	5	10	1.50	0%	No
204^		85%	98%	15 min.	30	30	1.50	0%	No
215^	✓	85%	87%	15 min.	10	15	1.50	0%	No
225^	✓	85%	88%	15 min.	15	30	1.50	0%	No
227~	✓	85%	86%	15 min.	15	30	1.50	0%	No
235^		85%	86%	15 min.	15	15	1.50	0%	No
237^	✓	85%	91%	15 min.	15	-	1.50	0%	No
280		90%	87%	30 min.	15	-	1.00	0%	No
290		90%	90%	30 min.	10	-	1.00	0%	No
701	✓	85%	85%	15 min.	15	15	1.50	0%	No
704	✓	85%	85%	30 min.	30	30	1.50	0%	No
705	✓	85%	91%	30 min.	30/60	30/60	1.50	0%	No
707	✓	85%	91%	30 min.	30	30	1.50	0%	No
709	✓	85%	86%	15 min.	7.5/15	15	1.50	0%	No
712	✓	85%	90%	15 min.	15	15	1.50	0%	No
815		85%	93%	15 min.	15	15	1.50	0%	No
816		85%	88%	30 min.	30	30	1.50	0%	No
832		85%	84%	30 min.	60	60	1.50	0%	No
833		85%	88%	30 min.	35-45	35-45	1.50	0%	No
834		85%	80%	30 min.	60	60	1.50	0%	No
838		85%	84%	30 min.	60	60	1.50	0%	No
848		85%	89%	30 min.	30	30	1.50	0%	No
851	✓	90%	93%	60 min.	60	60	1.00	0%	No
852	✓	85%	88%	30 min.	30	30	1.50	0%	No
854		85%	96%	30 min.	30/60	30/60	1.50	0%	No
855	✓	85%	89%	30 min.	30	30	1.50	0%	No
856	✓	85%	85%	30 min.	30	30	1.50	0%	No
864		85%	89%	30 min.	30	30	1.50	0%	No
872		85%	92%	30 min.	30	30	1.50	0%	No
874		0%	89%	30 min.	30	30	1.50	0%	No
875		0%	91%	30 min.	30	30	1.50	0%	No

San Diego Metropolitan Transit System
POLICY 42 PERFORMANCE MONITORING REPORT
FY 2026: QUARTER 3 - JANUARY 2026 - MARCH 2026

FY 2026 ROUTE STATISTICS (Q3)

BASE STATISTICS

Route	Cat	Jurisdiction (#=SD Dist.)	Q3 Passengers	FY25 - 26 % Change	Avg. Wkdy. Psgrs.	Psgrs./ Rev. Hr.	Psgrs./ InSvc. Hr.	Cost/ Psgr.	Average Fare	Subsidy/ Psgr.	Revenue	Expense	Total Subsidy	Farebox Recovery	Budgeted Rev.Svc. Hours	Budgeted Rev.Svc. Miles
888	Rural	**EC,Cty**	200	28.2%	3	1.4	1.5	$ 203.35	$ 3.71	$ 199.65	$7,209	$40,671	$33,462	1.8%	144	4,098
891	Rural	**EC,Cty**	71	12.7%	1	0.9	1.1	$ 319.12	$ 3.71	$ 315.42	$4,016	$22,658	$18,642	1.2%	75	2,283
892	Rural	**EC,Cty**	84	71.4%	1	1.3	1.4	$ 239.84	$ 3.71	$ 236.14	$3,571	$20,147	$16,576	1.5%	66	2,030
894	Rural	**EC,Cty**	14,996	3.3%	242	15.5	19.1	$ 15.83	$ 3.71	$ 12.13	$42,082	$237,423	$195,341	23.4%	967	23,923
901	**Frq**	3,8,**IB,Cor**	150,366	8.2%	1,908	15.6	19.4	$ 7.66	$ 1.20	$ 6.46	$305,334	$1,151,386	$846,052	15.7%	9,628	123,708
904*	Circ	**Cor**	4,658	31.5%	51	5.8	9.1	$ 6.60	$ 1.24	$ 5.36	$3,904	$30,731	$26,827	18.8%	809	4,034
905	Std	8	58,343	10.1%	876	15.7	22.3	$ 8.24	$ 1.20	$ 7.04	$127,467	$480,666	$353,199	14.5%	3,714	51,644
906	**Frq**	8	138,922	6.4%	1,825	25.9	34.5	$ 2.55	$ 1.20	$ 1.35	$93,959	$354,310	$260,351	47.0%	5,363	38,068
907	**Frq**	8	148,838	2.5%	1,952	26.8	36.2	$ 2.31	$ 1.20	$ 1.11	$91,155	$343,737	$252,582	51.9%	5,563	36,932
909	Circ	8	11,838	12.2%	191	12.9	17.5	$ 8.91	$ 1.20	$ 7.71	$27,972	$105,480	$77,508	13.5%	917	11,333
910**	Exp	3,8,**CV,NC**	22,513	N/A	269	19.6	23.7	$ 9.04	$ 1.20	$ 7.84	$53,950	$203,439	$149,489	13.3%	1,150	21,858
916	Std	4,**LG**	15,086	(1.0%)	219	10.9	13.4	$ 10.07	$ 1.20	$ 8.87	$40,291	$151,932	$111,642	11.9%	1,385	16,324
917	Std	4,**LG**	17,357	8.0%	250	11.9	14.6	$ 8.79	$ 1.20	$ 7.59	$40,454	$152,546	$112,093	13.6%	1,457	16,390
921	Std	1,6	60,558	10.9%	796	15.5	22.7	$ 6.41	$ 1.34	$ 5.07	$87,593	$388,409	$300,816	20.9%	3,895	38,014
923	Std	2,3	36,760	5.4%	593	11.2	13.7	$ 7.59	$ 1.20	$ 6.39	$73,996	$279,033	$205,036	15.8%	3,285	29,980
928	Std	6,7	40,431	3.2%	585	10.2	14.5	$ 9.45	$ 1.20	$ 8.25	$101,274	$381,897	$280,622	12.7%	3,947	41,032
929	**Frq**	3,8,**CV,NC**	346,086	(1.8%)	4,600	21.9	26.5	$ 4.02	$ 1.20	$ 2.83	$369,336	$1,392,734	$1,023,397	29.8%	15,772	149,639
932	**Frq**	8,**CV,NC**	203,733	1.8%	2,860	20.5	25.3	$ 4.42	$ 1.20	$ 3.22	$238,900	$900,871	$661,971	27.1%	9,915	96,792
933	**Frq**	8,**IB**	149,057	(2.0%)	1,996	22.7	27.0	$ 4.63	$ 1.20	$ 3.43	$182,907	$689,726	$506,819	25.9%	6,565	74,106
934	**Frq**	8,**IB**	144,252	(1.8%)	1,958	21.9	26.3	$ 4.65	$ 1.20	$ 3.45	$177,709	$670,125	$492,416	25.8%	6,583	72,000
936	Std	4,9,**LG,Cty**	91,011	2.0%	1,096	18.2	25.0	$ 4.50	$ 1.34	$ 3.16	$92,259	$409,100	$316,841	29.8%	4,997	40,039
944	Std	5,**PW**	12,873	0.3%	192	6.9	11.4	$ 11.85	$ 1.24	$ 10.60	$19,374	$152,490	$133,115	10.5%	1,854	20,017
945	Std	5,**PW**	27,113	2.8%	405	9.5	11.8	$ 11.03	$ 1.24	$ 9.79	$37,999	$299,075	$261,077	11.3%	2,855	39,259
946	Std	**PW**	1,075	(70.6%)	17	12.5	14.5	$ 9.06	$ 1.24	$ 7.82	$1,238	$9,743	$8,505	13.7%	86	1,279
955	**Frq**	4,8,9,**NC**	257,642	0.3%	3,484	24.6	31.0	$ 3.44	$ 1.20	$ 2.24	$234,882	$885,719	$650,837	34.9%	10,492	95,164
961	**Frq**	4,**NC**	125,657	4.5%	1,650	21.5	28.9	$ 4.42	$ 1.20	$ 3.23	$147,405	$555,850	$408,445	27.1%	5,851	59,722
962	**Frq**	4,**NC,Cty**	116,089	(0.6%)	1,516	20.4	28.3	$ 4.67	$ 1.20	$ 3.47	$143,646	$541,675	$398,029	25.7%	5,678	58,199
963	Std	4,**NC**	29,242	3.8%	393	13.0	19.1	$ 5.46	$ 1.20	$ 4.26	$42,356	$159,722	$117,366	21.9%	2,252	17,161
964	Circ	5,6	25,484	(4.5%)	411	11.4	16.2	$ 5.94	$ 1.24	$ 4.70	$19,234	$151,385	$132,151	20.9%	2,229	19,872
965	Circ	9	11,285	4.2%	161	9.8	14.9	$ 6.72	$ 1.24	$ 5.48	$9,632	$75,807	$66,175	18.5%	1,151	9,951
967	Std	4,**NC**	9,666	4.5%	156	11.0	15.3	$ 7.53	$ 1.20	$ 6.33	$19,309	$72,811	$53,502	15.9%	879	7,823
968	Std	**NC**	12,059	0.1%	195	11.8	15.5	$ 7.89	$ 1.20	$ 6.69	$25,242	$95,186	$69,944	15.2%	1,024	10,227
985	Circ	1	8,639	5.2%	139	10.4	15.4	$ 6.81	$ 1.24	$ 5.57	$7,477	$58,849	$51,372	18.2%	828	7,725
992	**Frq**	2,3	88,855	0.2%	1,002	16.7	23.0	$ 4.47	$ 1.20	$ 3.27	$105,268	$396,956	$291,688	26.8%	5,317	42,650
Access	D.R.	ALL	64,305	(9.5%)	906	1.6	1.6	$ 65.66	$ 4.43	$ 61.22	$285,170	$4,222,207	$3,937,037	6.8%	39,035	645,579
Taxi	D.R.	ALL	28,617	103.5%	425	2.5	2.5	$ 43.29	$ 4.43	$ 38.85	$126,906	$1,238,735	$1,111,829	10.2%	11,452	297,692
Blue	**LRT**	3,8,**NC,CV**	6,258,916	2.6%	78,301	209.8	247.5	$ 3.51	$ 0.81	$ 2.70	$5,059,695	$21,943,706	$16,884,011	23.1%	29,832	546,309
Orange	**LRT**	3,4,8,9,**LG,LM,EC**	1,528,014	(6.6%)	19,295	122.2	145.4	$ 5.24	$ 0.81	$ 4.44	$1,235,243	$8,012,670	$6,777,427	15.4%	12,502	201,199
Green	**LRT**	2,3,7,9,**LM,EC**	1,992,574	(2.2%)	23,699	127.6	157.1	$ 5.05	$ 0.81	$ 4.24	$1,610,793	$10,065,252	$8,454,459	16.0%	15,610	282,860
Copper	**LRT**	EC,ST	153,722	(7.8%)	1,922	45.9	60.6	$ 5.34	$ 0.81	$ 4.54	$124,269	$821,564	$697,295	15.1%	3,351	48,908
	TOTAL		**19,705,119**	1.7%	**255,339**	**34.6**	**43.2**	**$ 5.35**	**$ 1.01**	**$ 4.35**	**$19,835,303**	**$105,496,116**	**$85,660,813**	**18.8%**	**570,127**	**7,047,445**

Route Category	Q3 Passengers	FY25 - 26 % Change	Avg. Wkday. Psgrs.	Psgrs./ Rev. Hr.	Psgrs./ InSvc. Hr.	Cost/ Psgr.	Average Fare	Subsidy/ Psgr.	Revenue	Expense	Total Subsidy	Farebox Recovery	Revenue Hours	Revenue Miles
System Total	**19,705,119**	**1.7%**	**255,339**	**34.4**	**43.0**	**$ 5.35**	**$ 1.01**	**$ 4.35**	**$19,835,303**	**$105,496,116**	**$85,660,813**	**18.8%**	**572,558**	**6,998,654**
Fixed Route (Bus + Rail) Total	**19,612,197**	**1.6%**	**254,008**	**37.7**	**48.4**	**$ 5.10**	**$ 0.99**	**$ 4.11**	**$19,423,227**	**$100,035,175**	**$80,611,948**	**19.4%**	**519,639**	**6,104,175**
Light Rail (Blue, Orange, Green, & Copper)	**9,933,226**	**-0.1%**	**123,217**	**162.1**	**194.7**	**$ 4.11**	**$ 0.81**	**$ 3.30**	**$8,029,999**	**$40,843,192**	**$32,813,193**	**19.7%**	**61,295**	**1,079,276**
Bus	**9,678,971**	**3.5%**	**130,790**	**21.1**	**27.3**	**$ 6.12**	**$ 1.18**	**$ 4.94**	**$11,393,228**	**$59,191,983**	**$47,798,755**	**19.2%**	**458,344**	**5,024,899**
Urban Frequent	*5,949,434*	*2.6%*	*78,796*	*22.2*	*28.2*	*$ 5.74*	*$ 1.15*	*$ 4.60*	*$6,817,107*	*$34,155,957*	*$27,338,850*	*20.0%*	*268,556*	*2,597,886*
Urban Standard	*1,475,766*	*1.5%*	*20,694*	*15.0*	*20.5*	*$ 6.98*	*$ 1.47*	*$ 5.50*	*$2,172,940*	*$10,296,974*	*$8,124,034*	*21.1%*	*98,319*	*1,007,276*
Rapid ^	*1,921,705*	*7.1%*	*26,444*	*30.0*	*38.4*	*$ 5.68*	*$ 0.97*	*$ 4.71*	*$1,861,645*	*$10,910,425*	*$9,048,780*	*17.1%*	*64,006*	*995,258*
Express	*143,755*	*16.9%*	*1,971*	*13.1*	*15.9*	*$ 13.26*	*$ 1.39*	*$ 11.87*	*$199,687*	*$1,905,942*	*$1,706,255*	*10.5%*	*11,011*	*206,414*
Circulator	*141,327*	*2.7%*	*2,128*	*10.6*	*14.8*	*$ 7.76*	*$ 1.27*	*$ 6.49*	*$180,037*	*$1,096,666*	*$916,629*	*16.4%*	*13,395*	*135,266*
Premium/Rapid Express	*31,633*	*10.2%*	*510*	*17.5*	*21.0*	*$ 15.97*	*$ 3.32*	*$ 12.65*	*$104,935*	*$505,120*	*$400,185*	*20.8%*	*1,805*	*50,465*
*Rural ^^*	*15,351*	*3.8%*	*248*	*12.3*	*14.7*	*$ 20.90*	*$ 3.71*	*$ 17.20*	*$56,877*	*$320,898*	*$264,021*	*17.7%*	*1,252*	*32,334*
Demand-Resp Subtotal	**92,922**	**9.1%**	**1,331**	**1.8**	**1.8**	**$ 58.77**	**$ 4.43**	**$ 54.33**	**$412,076**	**$5,460,941**	**$5,048,865**	**7.5%**	**52,919**	**894,479**
MTS Access	*64,305*	*-9.5%*	*906*	*1.4*	*1.4*	*$ 65.66*	*$ 4.43*	*$ 61.22*	*$285,170*	*$4,222,207*	*$3,937,037*	*6.8%*	*45,045*	*668,600*
Access Taxi	*28,617*	*103.5%*	*425*	*3.6*	*3.6*	*$ 43.29*	*$ 4.43*	*$ 38.85*	*$126,906*	*$1,238,735*	*$1,111,829*	*10.2%*	*7,874*	*225,879*

* City of Coronado subsidized fares for summer service on Route 904.
^ SANDAG reimburses MTS for net operating costs for Routes 201-237 with TransNet funds (except Route 227).
^^ Routes 888, 891, 892, and 894 receive federal rural operating subsidy.
** New 910 Express route started service on Jan 26, 2025.
~ Copper Line started service on Sept 29, 2024
~ System summary totals include Transit Center costs not associated with specific routes.

NC=National City, CV=Chula Vista
IB=Imperial Beach, LG=Lemon Grove, LM=La Mesa
EC=El Cajon, ST=Santee, PW=Poway
Cor=Coronado, Cty=County Uninc., Esc=Escondido
SD Dist.=City of San Diego Council District

TITLE VI MONITORING (FY 2026 Q3 Statistics) ~

Route	Minority Route	On-Time Perf. Goal	On-Time Perf. Actual	Weekday Headway Goal	Weekday Headway Peak	Weekday Headway Base	Vehicle Load Factor ~~ Goal	Vehicle Load Factor ~~ % trips over VLF	Vehicle Load Factor ~~ > 20%?
888									
891									
892									
894									
901	✓	*85%*	82%	*15 min.*	15	30	*1.50*	0%	No
904*		*90%*	83%	*60 min.*	60	60	*1.50*	0%	No
905	✓	*85%*	91%	*30 min.*	15/30	30	*1.50*	0%	No
906	✓	*0%*	88%	*15 min.*	15	15	*1.50*	0%	No
907	✓	*0%*	88%	*15 min.*	15	15	*1.50*	0%	No
909	✓	*90%*	90%	*60 min.*	60+	60+	*1.5*	0%	No
910		*90%*	71%	*60 min.*	60+	60+	*1.5*	0%	No
916	✓	*0%*	83%	*30 min.*	30/60	30/60	*1.50*	0%	No
917	✓	*0%*	81%	*30 min.*	30/60	30/60	*1.50*	0%	No
921	✓	*85%*	87%	*30 min.*	30	30	*1.50*	0%	No
923		*85%*	91%	*30 min.*	30	30	*1.50*	0%	No
928		*85%*	91%	*30 min.*	30	30	*1.50*	0%	No
929	✓	*85%*	85%	*15 min.*	12	15	*1.00*	0%	No
932	✓	*85%*	84%	*15 min.*	15	15	*1.50*	0%	No
933	✓	*0%*	82%	*15 min.*	12	15	*1.50*	0%	No
934	✓	*0%*	84%	*15 min.*	12	15	*1.50*	0%	No
936	✓	*85%*	89%	*30 min.*	30	30	*1.50*	0%	No
944		*85%*	91%	*30 min.*	30	30	*1.00*	0%	No
945		*85%*	83%	*30 min.*	30	30	*1.50*	0%	No
946		*85%*	77%	*30 min.*	30	30	*1.50*	0%	No
955	✓	*85%*	87%	*15 min.*	12	12	*1.50*	0%	No
961	✓	*85%*	89%	*15 min.*	15/30	15/30	*1.50*	0%	No
962	✓	*85%*	87%	*15 min.*	15	15	*1.50*	0%	No
963	✓	*85%*	91%	*30 min.*	30	30	*1.50*	0%	No
964	✓	*90%*	88%	*60 min.*	30	30	*1.00*	0%	No
965	✓	*90%*	80%	*60 min.*	35-45	35-45	*1.00*	0%	No
967	✓	*85%*	88%	*30 min.*	60	60	*1.50*	0%	No
968	✓	*85%*	84%	*30 min.*	60+	60+	*1.50*	0%	No
985	✓	*90%*		*15 min.*	15	15			
992		*85%*	82%	*15 min.*	15	15	*1.50*	0%	No

*FTA defines **Minority** persons to include the following: (1) American Indian and Alaska Native, (2) Asian, (3) Black or African American, (4) Hispanic or Latino, (5) Native Hawaiian or Other Pacific Islander.*

*FTA defines **Minority Route** as one with at least 1/3 of its total mileage in a census block(s) with a percentage of minority population that exceeds the percentage of minority population in the entire MTS service area.*

Blue	✓	*90%*	92%	*15 min.*	7.5	15	*3.00*	0%	No
Orange	✓	*90%*	94%	*15 min.*	15	15	*3.00*	0%	No
Green			96%	*15 min.*	15	15	*3.00*	0%	No
Copper		*90%*	99%	*15 min.*	15	15	*3.00*	0%	No

Source: https://www.transit.dot.gov/sites/fta.dot.gov/files/dovs/FTA_Title_VI_FINAL.pdf

SERVICE AVAILABILITY

Goal	Actual	
80% of residents or jobs within ½ mile of a bus stop or rail station in urban area	*% of **residents** within 1/2 mile of a bus stop or rail station in urban areas:* ***99.2%***	*% of **jobs** within 1/2 mile of a bus stop or rail station in urban areas:* ***95.9%***
100% of suburban residences within 5 miles of a bus stop or rail station.	% of suburban residents within 5 miles of a bus stop or rail station: ***100.0%***	
One return trip at least 2 days/week to destinations from rural villages (defined as Lakeside and Alpine).	*Available Service:* ***Route 848 serves Lakeside seven days a week and Route 838 serves Alpine seven days a week.***	

See attached map entitled 'Metropolitan Transit System Area of Jurisdiction.'

Percentage Sources: American Community Survey (2019) and 2020 U.S. Census Bureau
^ Minority Route report updated using ACS 2021 (10/26/2023)
~ Title VI Monitoring statistics are updated on an annual basis
~~ No trips averaged above the vehicle load factor target (1.5 for most bus routes, 3.0 for Trolley).
NOTE: Rural and Demand Response services have no specific Policy 42 goals for OTP, headway, or vehicle load.

** Service Availability updated from PR request for Urban & Suburban Transit Access (1/27/2023)*

Metropolitan Transit System

FY 2026 – Q3 Performance Monitoring Report

Board of Directors

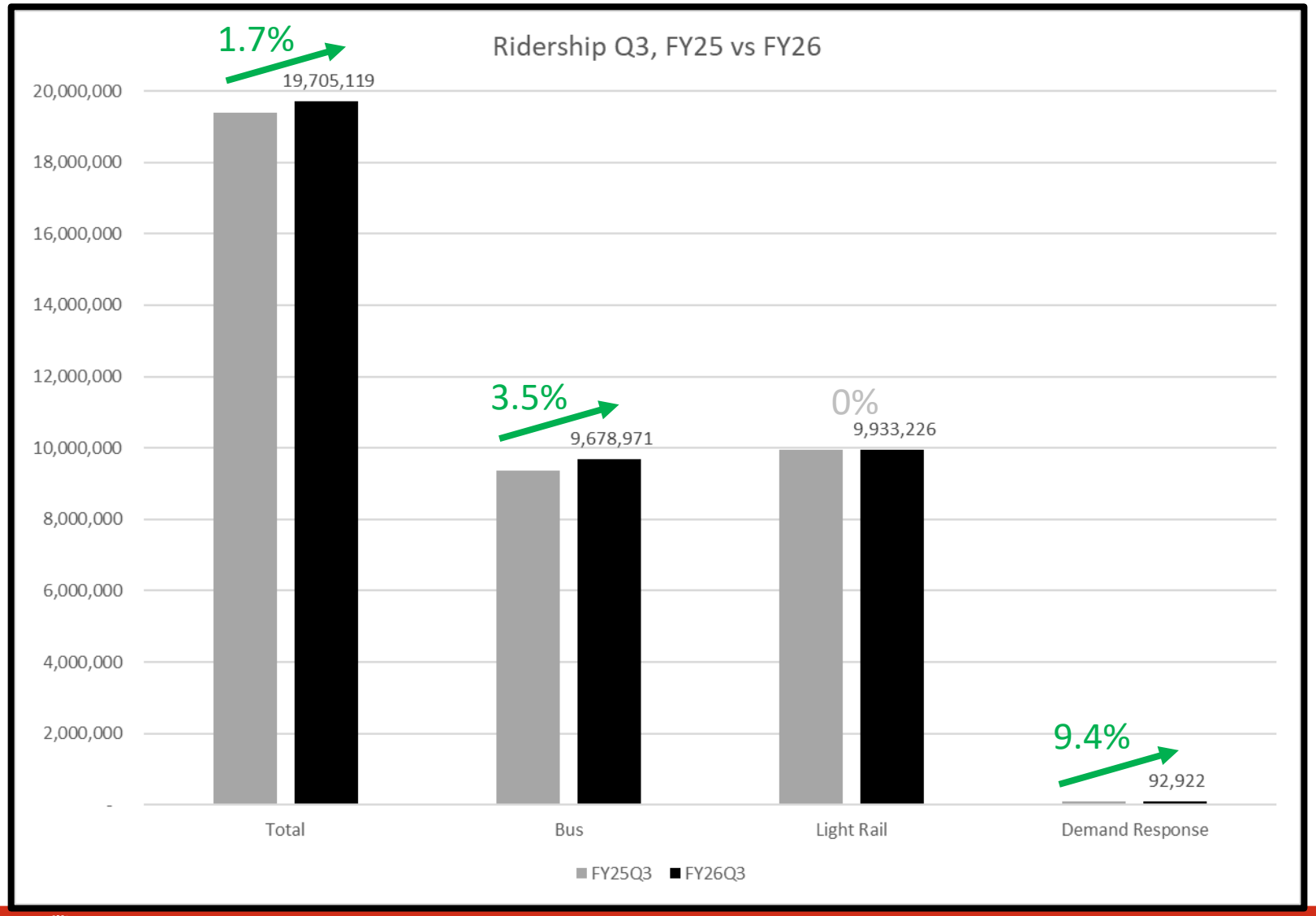
Board Policy 42

- Board policy to establish:
  - A process for evaluating and adjusting existing transit services to improve performance
  - Procedures for implementing service changes
- Adopted vision is for a customer-focused, competitive, integrated, and sustainable system
- Categorizes services by types:
  - Bus: premium express, express, Rapid, urban frequent, urban standard, circulator, Rural
  - Light Rail (Trolley)
  - Demand Response
- Performance indicators are analyzed with performance targets established
- Board receives annual and quarterly updates

Policy 42 Evaluation Criteria

CUSTOMER FOCUSED/COMPETITIVE		INTEGRATED	SUSTAINABLE	
PRODUCTIVITY	QUALITY	CONNECTIVITY	RESOURCES	EFFICIENCY
• **Total Passengers** • **Average Weekday Passengers** • **Passengers/ Revenue Hour** • Passengers/ In-Service Hour	• Passenger Load Factor • **On-Time Performance** • Accidents/ 100,000 Miles • Comments/ 100,000 Passengers • Mean Distance Between Failures	• Route Headway • Span-of- Service Consistency • Service Availability	• In-Service Miles • In-Service Hours • Peak Vehicle Requirement	• In-Service Speed • In-Service/Total Miles • In-Service/Total Hours • Farebox Recovery Ratio • **Subsidy/Passenger**

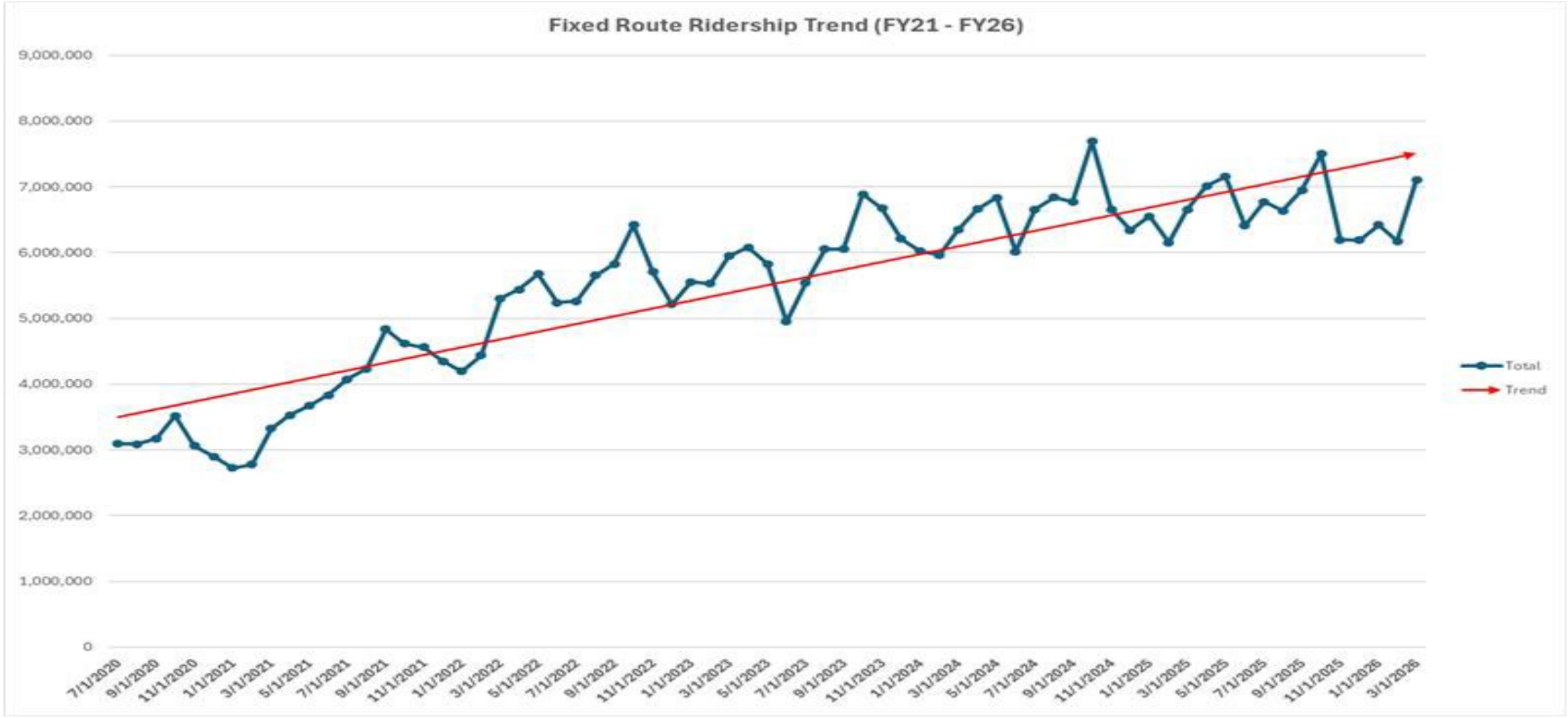
Total Ridership by Quarter



Overall Trends

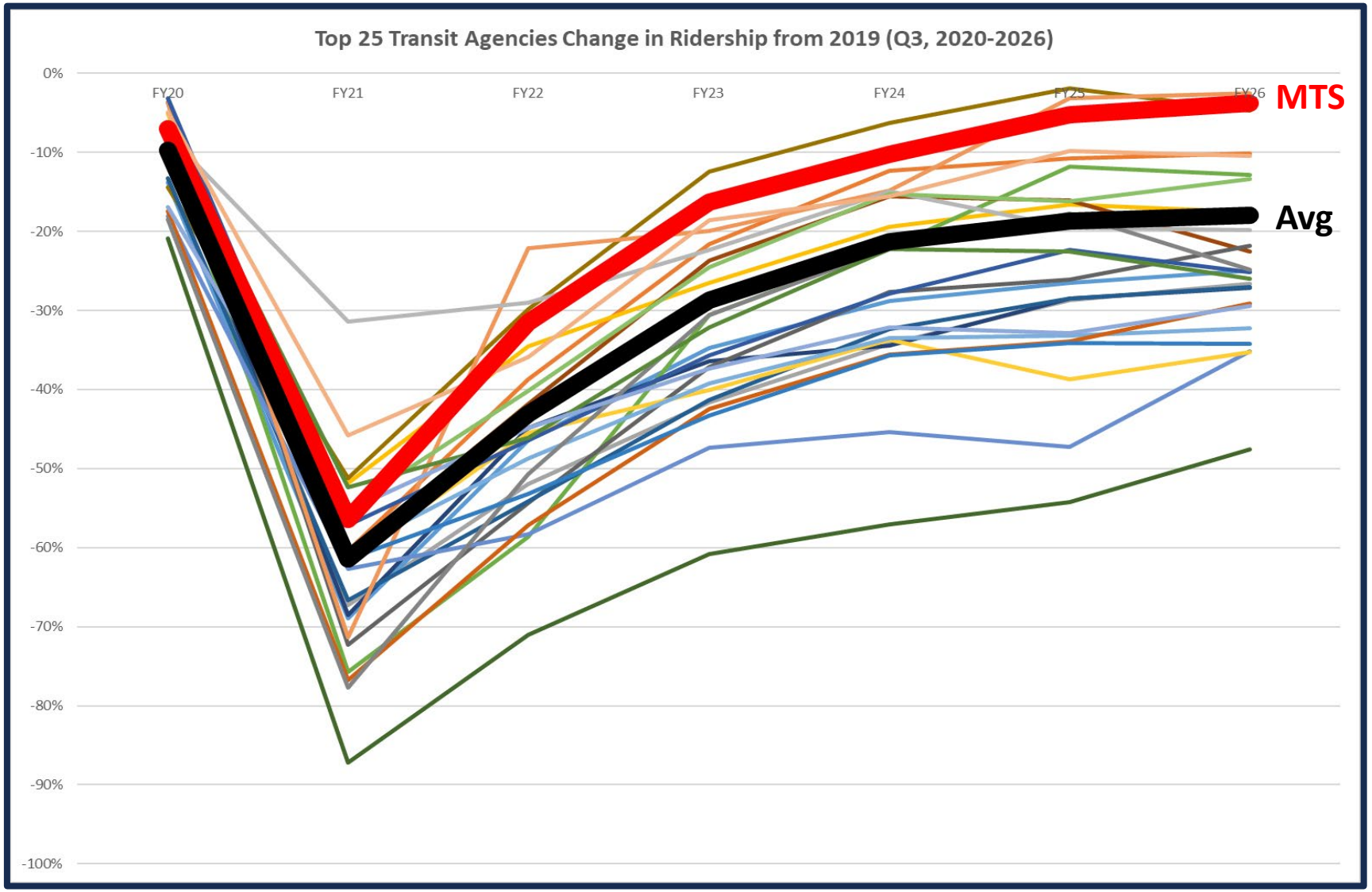
- FY26 Q3 increased 1.7% over FY25 Q3, despite slight reduction in service
- Preliminary April ridership (Q4) showing 3% increase

Overall Ridership Trends



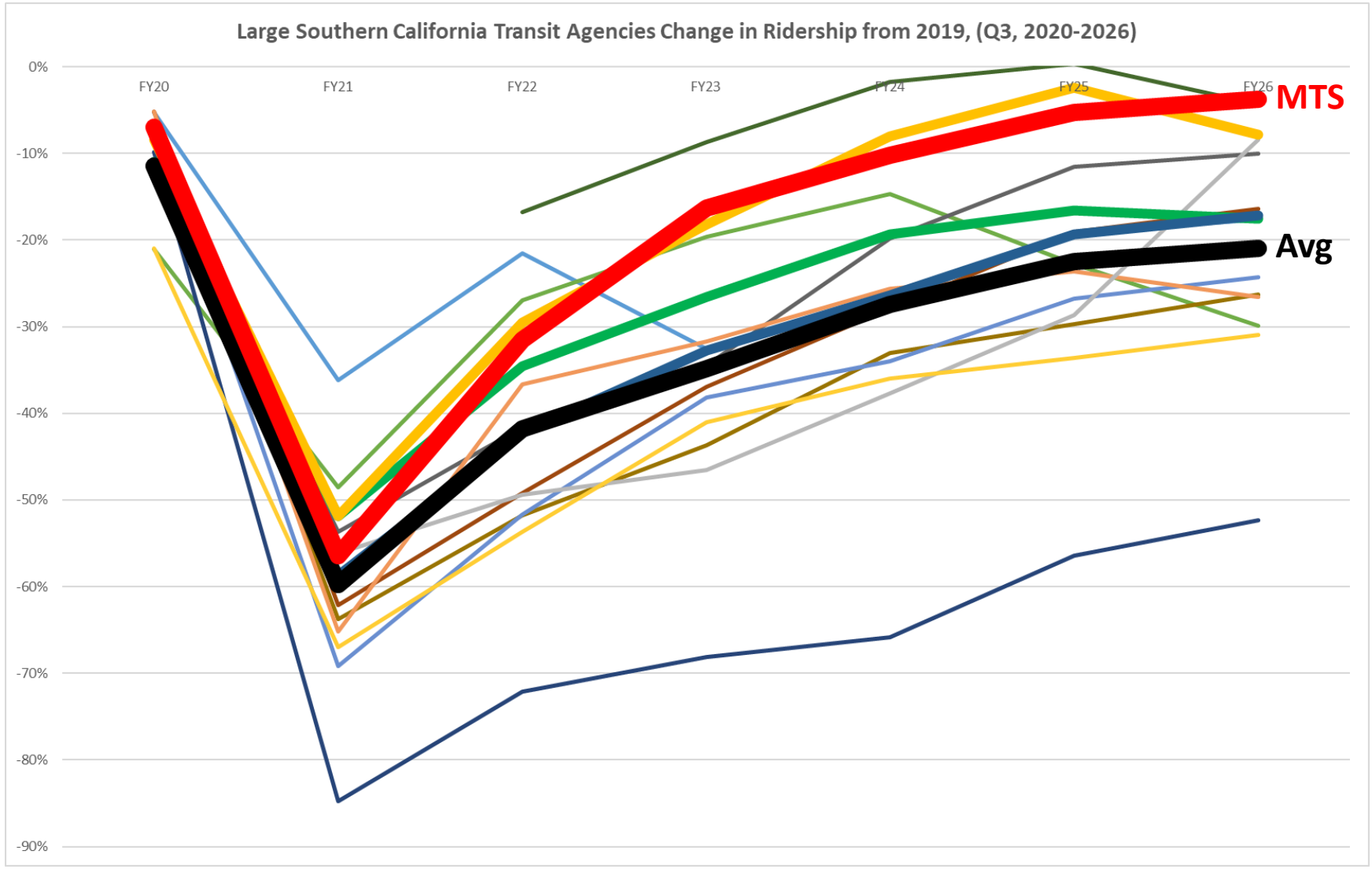
National Transit Ridership Trends

- **MTS overall has one of highest ridership retention of largest transit agencies**



Southern California Transit Ridership Trends

- Virtually all saw reduced growth from FY25 to FY26
- MTS overall has highest ridership retention of largest transit agencies



Passengers per Revenue Hour

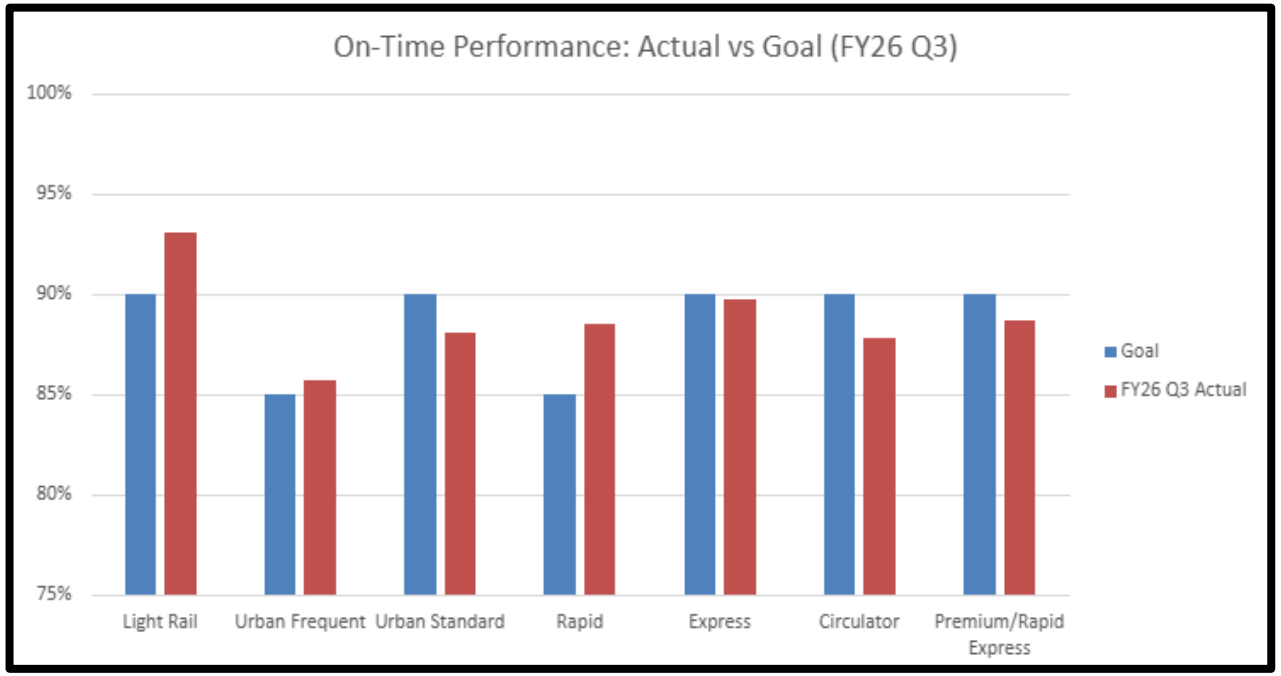
- Policy 42 goal is to improve the route category average
- Metric has upward trend in all bus categories
- Trolley slightly down to enhanced 15-minute service which started one month into FY25 Q3

Route Categories	FY 2025 Q3	FY 2026 Q3	% Change FY25 - FY26
System Total	**33.1**	**34.4**	**3.8%**
Fixed Route (Bus + Rail) Total	**36.5**	**37.7**	**3.4%**
Light Rail (Blue, Orange, Green, & Copper)	**163.9**	**162.1**	**-1.2%**
Bus	**20.0**	**21.1**	**5.3%**
Urban Frequent	*21.0*	*22.2*	*5.2%*
Urban Standard	*14.6*	*15.0*	*2.7%*
Rapid	*27.9*	*30.0*	*7.1%*
Express	*11.5*	*13.1*	*11.9%*
Circulator	*9.7*	*10.6*	*8.1%*
Premium/Rapid Express	*15.7*	*17.5*	*10.4%*
Rural	*11.9*	*12.3*	*2.9%*
Demand-Resp. Subtotal	**1.5**	***1.8***	**14.6%**
Demand-Resp. (MTS Access)	*1.4*	*1.4*	*1.9%*
Demand-Resp. (Access Taxi)	*2.6*	*3.6*	*28.5%*

On-Time Performance

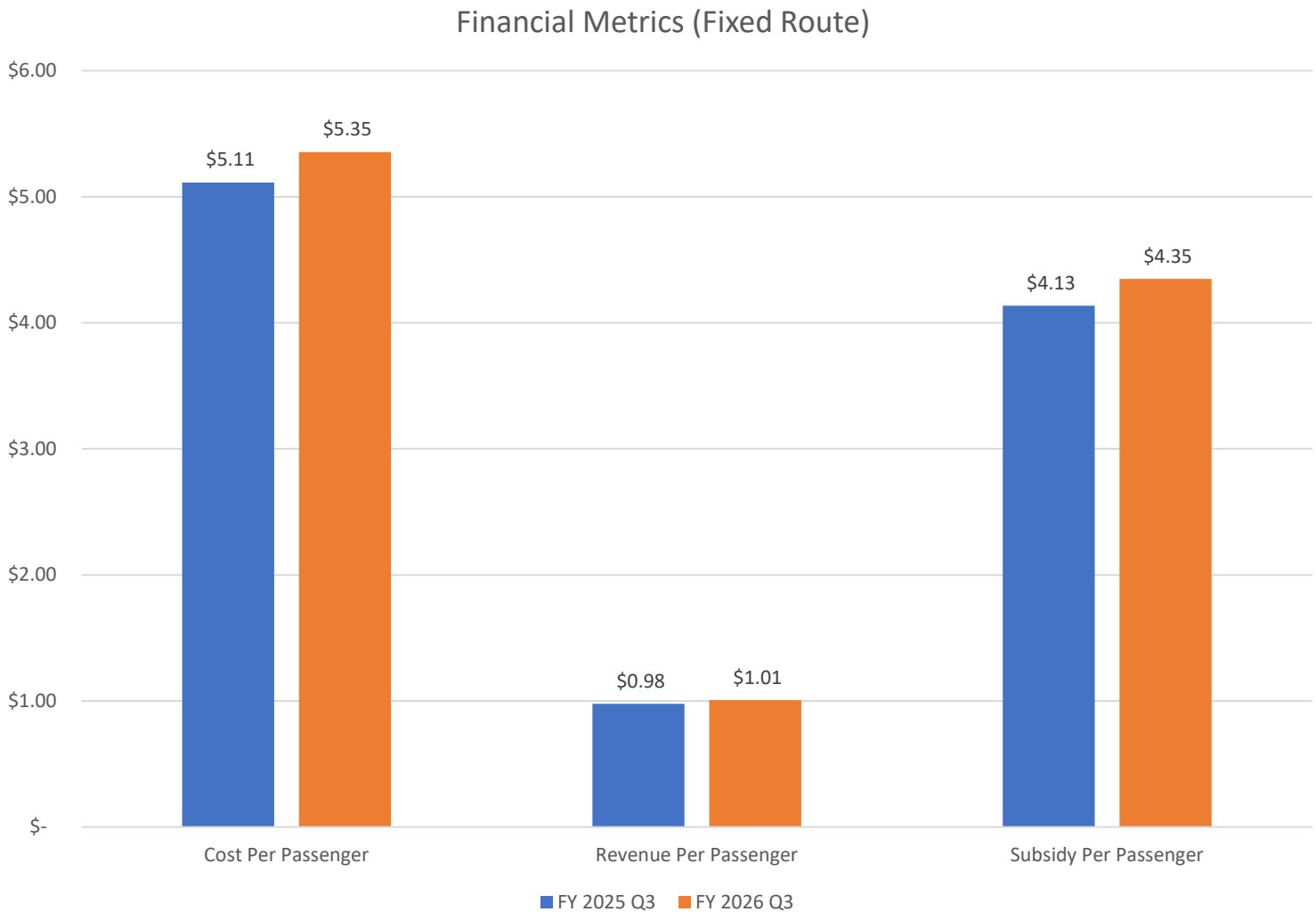
- Policy 42 goal is 85% for Urban Frequent & Rapid, 90% for all other categories
- OTP is trending up

Route Categories	Quarter				GOAL
	Q4 FY25	Q1 FY26	Q2 FY26	Q3 FY26	
System					
Light Rail (Blue, Orange, Green, & Copper)	**96.0%**	**95.1%**	**94.1%**	**93.1%**	*90.0%*
Bus	**88.0%**	**87.0%**	**87.0%**	**86.8%**	
Urban Frequent	87.1%	85.9%	86.1%	85.7%	*85.0%*
Urban Standard	89.4%	88.4%	87.6%	88.1%	*90.0%*
Rapid	89.6%	90.1%	89.8%	88.6%	*85.0%*
Express	87.0%	87.1%	86.9%	89.7%	*90.0%*
Circulator	90.5%	87.6%	88.3%	87.8%	*90.0%*
Premium/Rapid Express	89.1%	88.9%	88.3%	88.7%	*90.0%*
Rural	N/A	N/A	N/A	N/A	
Demand-Resp. (Access & Taxi)	N/A	N/A	N/A	N/A	



Financial Metrics

- Considerations:
  - (a) costs of providing service
  - (b) fare revenue from service
  - (c) net subsidy
- Costs and subsidy per passenger have slightly increased due to increased costs.
- Revenue has also slightly increased due to higher ridership.



Financial Metrics

- Even though costs are increasing, MTS is still vastly more efficient than other large transit agencies, as determined by San Francisco MUNI peer analysis

- If MTS costs per passenger were at the peer average, we would have carried 35 million (rather than 75 million) passengers in FY2024

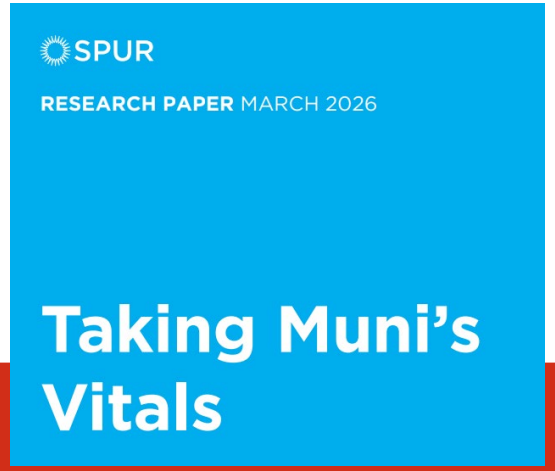


Exhibit 21. Cost per Passenger, SFMTA and National Peers, 2024

Muni's exceptional productivity enables the system to achieve a relatively low cost per passenger compared with its peers' cost.

Agency (Metro Area)	Cost per Passenger, Motorbus Only	Costs per Passenger, Light Rail Only	Cost per Passenger, All Modes
SFMTA	$6.59	$8.53	$7.03
NYMTA (New York)	$3.61	-	$3.68
CTA (Chicago)	$5.96	-	$6.20
Metro (Los Angeles)	$6.42	$14.50	$7.99
WMATA (Washington, D.C.)	$8.95	-	$11.25
MBTA (Boston)	$7.24	$7.25	$8.59
NJT (New Jersey/New York)	$8.94	$5.88	$13.25
SEPTA (Philadelphia)	$7.19	-	$7.73
King County Metro (Seattle)	$10.57	-	$11.39
Miami-Dade (Miami)	$6.80	-	$7.39
MTS (San Diego)	$6.77	$3.58	$5.05
MARTA (Atlanta)	$9.32	-	$10.18
TriMet (Portland)	$9.70	$10.74	$11.06
RTD (Denver)	$14.34	$14.64	$13.88
DART (Dallas)	$12.91	$12.09	$14.06
Average of Peer Group	$8.35	$9.65	$9.25

Questions/Comments