2018
TRIENNIAL ON-SITE SAFETY REVIEW OF SAN DIEGO TROLLEY, INC. (SDTI)

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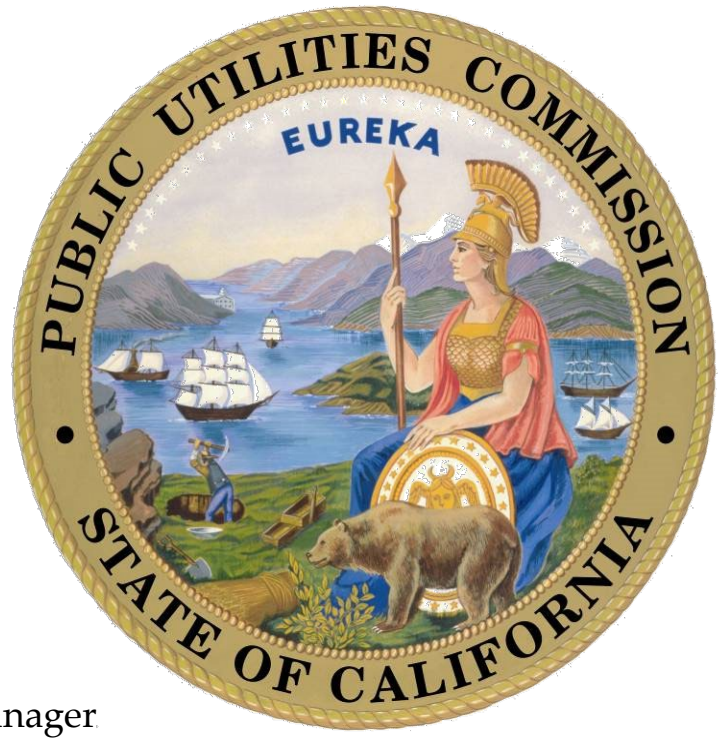

Final Report
August 17, 2018

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2018 TRIENNIAL SAFETY REVIEW OF SAN DIEGO TROLLEY, INC. (SDTI)

ACKNOWLEDGEMENT

The California Public Utilities Commission's Rail Transit Safety Branch (RTSB) conducted this system safety program review. Staff members directly responsible for conducting safety review and inspection activities include:

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1. EXECUTIVE SUMMARY

The California Public Utilities Commission's Safety and Enforcement Division (now Rail Safety Division), Rail Transit Safety Branch (RTSB) staff (Staff) conducted an on-site system safety program review of the San Diego Metropolitan Transit System's (MTS) rail transit subsidiary, San Diego Trolley, Incorporated (SDTI) from June 4 through June 9, 2018. Some field inspections and reviews took place earlier, from May 14 through May 31, 2018. The review focused on verifying SDTI's implementation of its System Safety Program Plan (SSPP), as well as SDTI's compliance with State and Federal rules and regulations. This report details staff's investigatory actions, findings, and recommendations. The review revealed areas of non-compliance, as discussed below.

An opening conference meeting between SDTI personnel, representatives from the San Diego Association of Governments (SANDAG), and Staff immediately preceded the initial on-site review activities, beginning Monday, June 4, 2018. The review continued through June 9, 2018. On July 31, 2018, Staff held a post-review conference meeting, where Staff provided SDTI personnel with a summary of all findings. Staff identified 22 findings of non-compliance. From these findings, Staff issued 17 recommendations for corrective actions.

Section 2 (Introduction) of this report, provides a summary of the authority under which the California Public Utilities Commission (CPUC or Commission) performs the triennial reviews and presents a brief chronology of the review. Section 3 (Background) includes a description of the SDTI system. Section 4 (Review Procedure) explains the procedures used by Staff during the System Safety Review. Section 5 (Findings and Recommendations) outline Staff's 22 findings of non-compliance and 17 recommendations, organized by source checklist numbers. Finally, the Appendices include a list of abbreviations and acronyms used in the report and checklists, tabulated findings and recommendations, the complete set of the 39 review checklists with summaries of all review activities, and the original comments, findings, and recommendations. This report reflects Staff's triennial safety review of SDTI. The SDTI on-site triennial security review report is contained in a separate Report and is brought before the Commission for approval in a separate Resolution. [1]

[1] Staff's security review and report, "2018 Triennial Security Review of San Diego Trolley, Inc." is being brought before the Commission concurrently in Resolution ST-225.

2. INTRODUCTION

The Commission General Order (GO) 164-E, *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration (FTA) Rule, Title 49 Code of Federal Regulations (CFR) Part 659, *Rail Fixed Guideway Systems: State Safety Oversight*, require the designated State Safety Oversight Agencies to perform a review of each rail transit agency's system safety program plans a minimum once every three years. The triennial review verifies compliance and evaluates the effectiveness of each rail transit agency's System Safety Program Plan to assess the level of compliance with GO 164-E and other Commission and regulatory safety requirements. This is the seventh triennial safety review of SDTI. The previous review occurred in June 2015.

On May 4, 2018, Staff advised the MTS Chief Executive Officer (CEO) that the Commission's safety review was scheduled to occur May 17-June 8, 2018. The letter included 39 checklists that served as the basis for the review. Staff conducted an opening conference on June 5, 2018 with SDMTS Chief Executive Officer, Chief of Police of Transit Security, Executive Management, Superintendents, Supervisors, SANDAG personnel, and Transit Security personnel. At the conclusion of each review activity, staff provided SDTI and SANDAG representatives with a summary of the preliminary findings and discussed any potential recommendations for corrective action.

On July 31, 2018, following the triennial safety review's conclusion, Staff conducted a post-review exit meeting with MTS's Chief Executive Officer, SDTI's Chief Operations Officer, and SDTI's department managers. Staff provided the attendees with a summary of the findings of non-compliance derived from the 39 checklists used to guide the review and discussed the need for corrective actions where applicable.

3. BACKGROUND

Legislature created the Metropolitan Transit Development Board (MTDB) in 1975 by passage of California Senate Bill 101, empowering the board to design, engineer, and build fixed guideway facilities within San Diego County, California. MTDB established the San Diego Trolley, Inc. (MTS-Rail) in August 1980 as a wholly owned subsidiary responsible for operation and maintenance of the Light Rail Transit (LRT) system. The San Diego Regional Transportation Consolidation Act (Senate Bill 1703, effective January 1, 2003) directed consolidation of the San Diego Association of Governments (SANDAG) with the capital projects functions of the transit boards MTDB and North San Diego County Transit Development Board (NCTD). The planning, programming, project development, and construction functions of MTDB and NCTD shifted to SANDAG to create a consolidated regional transportation planning and development agency. In 2005, MTDB changed its name to the Metropolitan Transit System (MTS) to reflect the new relationship with SANDAG. The area of jurisdiction is about 570 square miles serving a population of 3 million, approximately 75% of southwestern San Diego County.

SDTI RAIL SYSTEM

The SDTI LRT system operates over 53.5 miles on three routes, mostly double-tracked, with 53 stations. MTS fiscal year ridership averaged 239,633,896 in 2015, 231,071,338 in 2016, and 225,827,664 in 2017. SDTI's rail lines are classified as "light rail" on semi-exclusive right-of-way. There is a shared corridor with BNSF, Amtrak, and Coaster trains beginning at Park Blvd/Harbor Drive on the Bayside Corridor going through the Old Town Corridor parallel to Pacific Highway and ending approximately a quarter mile north of the Taylor Street grade crossing. In addition to the shared corridor, portions of SDTI track on the Blue and Orange Lines are jointly used by light rail transit and freight operations under scripted temporal separation with limited night-time joint operations. The San Diego and Imperial Valley Railroad (SDIV), a subsidiary short line railroad owned by Rail America Corporation, shares track with SDTI on the Blue line from the Imperial Transfer Station to the International Border. SDTI and SDIV share track on the Orange Line from Commercial Street at the Imperial Junction to Bradley Avenue in El Cajon, California. Freight operations by SDIV operate during the early morning hours with a fringe period of overlap with SDTI light rail transit operations under a Federal Railroad Administration (FRA) waiver. FRA approved SDTI standard operating procedures ensure during this overlap mode of operation the light rail vehicles remain spatially and temporallyP0F[2]P separated.

SDTI operates four lines described as:

[2] Temporal separation exists when no simultaneous operation of light rail transit and freight trains on the same tracks occurs.

- **Blue Line** - Revenue service began on July 26, 1981. The Blue Line currently extends 15.4 miles from the America Plaza Station to the San Ysidro station at the U.S-Mexico international border. Trains operate on city streets for 1.4 miles (C Street & India to 12th & Imperial) of the total 15.4 miles with the remaining 14 miles from 12th & Imperial to the San Ysidro station operating in semi-exclusive right-of-way[3]. The Blue Line operates through four jurisdictions: the cities of San Diego, National City, Chula Vista, and an unincorporated area of San Diego County.

- **Orange Line** – Revenue service on the first phase, from Imperial Transfer to the Euclid Avenue station, began on March 23, 1986. The line was extended in 1989 to El Cajon, and to Santee in 1995. The Orange Line currently extends 16.9 miles from the Santa Fe Depot station (via the downtown San Diego C Street corridor) to the El Cajon Transit Center station. Of the 16.9 miles, 1.7 miles of track are operated on city streets (C Street & India to 32nd & Commercial). After the 32nd & Commercial station, the line continues east for an additional 13.8 miles on semi-exclusive right-of-way to the El Cajon Transit Center station. The Orange Line operates through four jurisdictions including the City of San Diego, Lemon Grove, La Mesa and El Cajon.

- **Green Line** - Revenue service began on July 10, 2005. The Green Line begins at the Imperial Transfer Station and extends 23.8 miles through Mission Valley, under San Diego State University (SDSU) via a subway and continues east on semi-exclusive right-of-way to Cuyamaca Street in Santee. The last 0.6 miles of the line are operated on city streets before terminating at the Santee Town Center Station.

- **Silver Line** – One Presidential Conference Car (PCC) Vintage Trolley Streetcar began revenue service on August 2011 and the second PCC began in March 2015. The PCC operates on an existing 2.7-mile downtown loop from the 12th & Imperial Transit Center station clockwise, adjacent to Harbor Drive, on C Street, and Park Blvd and completes its loop at the 12th & Imperial Transit Center station on the "third track". The PCC operates on Friday 5:30am-12:30pm, Saturday on 1:30pm-10:30pm, and Sunday 9:30am-6:30pm and major holidays on 30-minute headway.

[3] CPUC General Order 143-B, §9.04 Alignment Classification: Semi-exclusive is 1) fully exclusive right-of-way with at-grade crossings, protected between crossings by a fence or substantial barrier, if appropriate to the location. 2) Within street right-of-way but protected by six-inch high curbs and safety fences between crossings. The safety fences should be located outside the tracks. 3) Within street right-of-way but protect by six-inch high curbs between crossings. A safety fence may be located between tracks. 4) Within street right-of-way, but protected by mountable curbs, stripping, or lane designation.

SYSTEM EXPANSIONS AND CAPITAL PROJECTS

Mid-Coast Corridor Transit Project

The Mid-Coast Trolley project will extend Trolley service from Santa Fe Depot in Downtown San Diego to the University City community, serving major activity centers such as Old Town, the University of California San Diego (UCSD), and Westfield UTC. (See Figure 1.) Construction is anticipated to begin in 2016, with service beginning approximately four years later.

The Mid-Coast extension begins just north of the Old Town Transit Center and travels in existing railroad right-of-way and alongside Interstate 5 to Gilman Drive. It crosses to the west side of I-5 just south of Nobel Drive and continues on to the UCSD campus, crosses back to the east side of I-5 near Voigt Drive to serve the UCSD east campus and medical centers, transitions into the median of Genesee Avenue, and continues down Genesee Avenue to the Westfield UTC Transit Center.

The project will connect corridor residents with other Trolley lines serving Mission Valley, East County, and South County. As an extension of the existing Blue Line, it will offer a one-seat (no transfer) ride from the international border and communities south of Downtown San Diego all the way to University City. This new service will enhance direct public access to other regional activity centers and improve travel options to employment, education, medical, and retail centers for corridor residents, commuters, and visitors.

In Fall 2014, the Mid-Coast project received its final environmental clearance from the SANDAG Board of Directors and the Federal Transit Administration (FTA). In September 2016, the FTA signed a Full Funding Grant Agreement with SANDAG to provide the 50 percent federal match needed to begin construction in late Fall 2016. The other half of the funding is provided by TransNet, the San Diego region's voter approved half-cent sales tax for transportation improvements. Pre-construction activities consisting of relocating underground utilities for the project alignment, began in early 2016. Primary construction activities are currently in-process and revenue service is anticipated by Summer 2021.

Figure 1 - Mid-coast Project Alignment

SD9 Light Rail Vehicle Procurement

SDTI is procuring 45 new light rail vehicles (LRVs) from Siemens Transportation Group. The 45 new LRVs are being procured in advance of the Mid-Coast Light Rail Extension activation, scheduled for revenue service Fall 2021. The new vehicles will operate on the existing SDTI system and their future Mid-Coast Rail Extension. The procurement project began January 2018 with an expected scheduled completion and acceptance of all 45 LRVs by June 2021. The 45 new SD9 LRVs will be manufactured by Siemens Transportation Systems, Inc. in Sacramento, California. The SD9 models are similar to the eleven S70 Siemens LRV models currently in revenue service on the SDTI system since July 2005 and the 65 SD8 models in revenue service since September 28, 2011. All 45 new LRVs will be equipped with two forward facing cameras in each of the train operator's cabs which record train operator actions (in accordance with General Order 172) and events in front of the train such as pedestrian traffic or motor vehicle movement. The other interior cameras in the seating areas provide security to enhance passenger safety on-board the trains. The first LRV is scheduled for revenue service in April 2019.

STATUS OF 2015 SDTI TRIENNIAL SAFETY REVIEW RECOMMENDATIONS

Staff performed the previous triennial on-site safety review in 2015. Staff utilized 39 separate checklists to guide that review and made 15 recommendations for corrective actions.

Commission Resolution ST-188, adopted December 15, 2016, granted approval of Staff's final report and its recommendations, ordering SDTI to develop appropriate corrective action plans and an implementation schedule. Resolution ST-188 also ordered SDTI to submit monthly status reports tracking the implementation of these corrective actions through full completion.

SDTI developed and submitted corrective action plans and an implementation schedule to fulfill each of the recommendations. All of the 2015 Triennial Safety Review Audit Corrective Action Plans (CAP's) have been corrected, field verified by Staff, and closed out.

4. REVIEW PROCEDURE

Staff conducted the 2018 review in accordance with the Rail Transit Safety Branch Procedure RTSB-4, *Procedure for Performing Triennial On-Site Safety and Security Reviews of Rail Transit Systems*. Staff developed thirty-nine (39) checklists to cover various aspects of system safety responsibilities based on Commission and FTA requirements, the SDTI SSPP, safety related SDTI documents, and staff knowledge of the SDTI system. A list of the 39 checklists is contained in Appendix C. The completed checklists are included in Appendix D of this report.

Each checklist identified safety-related elements and characteristics that were either inspected directly by Staff or by reviewing reports and records. The checklists reference criteria include Commission general orders, SDTI rules and SOPs, and other documents that establish the safety program requirements. The completed checklists include the staff's findings and recommendations corresponding to non-compliant findings with SDTI's SSPP, its procedures, or Commission regulations. The methods used to perform the review include:

- Discussions with SDTI management;
- Reviews of procedures and records;
- Observations of operations and maintenance activities;
- Interviews with rank and file employees; and
- Inspections and measurements of equipment and infrastructure.

The review checklists concentrated on requirements that affect the safety of transit operations and are known or believed to be important in reducing safety hazards and preventing accidents.

5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors who participated in the On-Site System Safety Review identified 22 findings of non-compliance and made 17 recommendations to improve VTA's system safety program. Review findings identify areas where changes should be made to adhere to their SSPP and improve the SDTI system safety program. The review results are derived from activities observed, documents reviewed, issues discussed with management, and field inspections. These findings and recommendations are listed below and are grouped by checklist number.

1. **Policy Statement & Authority for SSPP (Executive Management Involvement and Commitment to Safety)**

   No findings of non-compliance, no recommendations.

2. **SSPP Goals and Objectives**

   No findings of non-compliance, no recommendations.

3. **Overview of Management Structure**

   No findings of non-compliance, no recommendations.

4. **SSPP Control and Update Procedure**

   Finding of Non-compliance:

   The SDTI Transportation Department SSPP with the same version and date as the SDTI SSPP provided to staff has a different maximum vehicle speed on page 8.

   Recommendation:

   1. SDTI must ensure that any changes to the SDTI SSPP always result in a new version number and date to prevent inconsistencies. SDTI should consider updating their SSPP, Section 4 with that requirement.

5. **SSPP Implementation Activities and Responsibilities**

   No findings of non-compliance, no recommendations.

6. **Hazard Management Process**

   No findings of non-compliance, no recommendations.

7. **System Modification Process**

   Finding of Non-compliance:

Staff identified an inconsistency between the SDTI SSPP and San Diego Associated Governments (SANDAG) Configuration Management Plan (CMP) on which agency is ultimately responsible for the safety certification of projects.

Recommendation:

2. SDTI needs to clarify roles and responsibilities of SANDAG and SDTI in the System Safety Program Plan and the Configuration Management Plan. The safety certification process responsibilities as described in both documents must be clear and consistent.

8. **Safety and Security Certification**

No findings of non-compliance, no recommendations.

9. **Safety Data Collection and Analysis**

No findings of non-compliance, no recommendations.

10. **Accident/Incident Investigations**

No findings of non-compliance, no recommendations.

11. **Emergency Management Program**

No findings of non-compliance, no recommendations.

12. **Internal Safety Audits**

No findings of non-compliance, no recommendations.

13-A**. Operating Rules Compliance**

No findings of non-compliance, no recommendations.

13-B. **Operations Safety Compliance Program Inspection – CPUC Operating Inspector**

No findings of non-compliance, no recommendations.

13-C. **Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service**

Finding of Non-compliance:

Per payroll records, on 2/23/18, this Lookout was paid 8 hours regular, 4 hours overtime, 33 minutes double and the records show 12 hours and 33 minutes worked. Upon investigation, Staff reviewed logs from Operations Control Center (OCC) that revealed work crew advised OCC the Lookout would have to work over 12 hours

due to concrete being poured. Working over 12 hours for Safety Sensitive employees is allowable in an emergency situation only. Staff does not agree this qualified as an emergency situation.

Recommendation:

3. SDTI must ensure Safety Sensitive Employees are not on duty more than 12 consecutive hours, as required by General Order 143-B, section 12.04 (Hours of Service Requirements), and clarify for field and OCC staff what constitutes an emergency.

13-D. **Rules Compliance: Contractor Safety Program**

No findings of non-compliance, no recommendations.

13-E. **Rules Compliance: Operating Rules and Maintenance**

No findings of non-compliance, no recommendations.

13-F. **Operations Control Center and SCADA**

No findings of non-compliance, no recommendations.

14-A. **Facilities and Station Inspections**

No findings of non-compliance, no recommendations.

14-B. **Facilities and Equipment Inspections: Stations and Emergency Equipment**

No findings of non-compliance, no recommendations.

14-C. **Facilities and Equipment Inspections: Bridges, Tunnels, and Aerial Structures**

Finding of Non-compliance:

Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations were not:

a. Corrected within the prescribed time frame (Priority);

b. Corrected in a timely manner;

c. Tracked until resolution;

d. Provided to the Safety Committee and Safety Department.

Recommendations:

4. SDTI must correct Bridge Inspection defects found within the prescribed time frame, in a timely manner, and track them until corrective action(s) are implemented.

5. SDTI Wayside Department must provide the inspection results report Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations identified during Tunnel, Bridge, and Aerial Structure inspections, to the Safety Department, which may have prevented this finding.

14-D. **Facilities and Equipment Inspections: GO95 Right-of-Way Compliance**

Findings of Non-compliance:

1. Staff found Inspection forms incompletely filled out, missing repair dates and repaired by signatures.
2. SDTI is failing to document and provide Repair/Work orders for defective conditions noted on forms.

Recommendation:

6. SDTI must review inspections forms, ensure they are filled out completely, tracked, and provide corrective action plans for any and all hazards according to Overhead Catenary System (OCS) Book of Standards and SSPP Section 15.1.

14-E**. Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing**

Findings of Non-compliance:

CROSSING INSPECTIONS:

Sampson:

- Staff noted discrepancy in frequency noted on plans and what is installed in case (Title 49 Code of Federal Regulations [CFR] § 234.201).
- (SDTI corrected on site) Staff noted defective gate striping (Manual on Uniform Traffic Control Devices [MUTCD] 8C.04).

University:

- Staff noted ENS sign missing on gate A & B (GO 75D 5).
- Flashers not directed towards traffic (49 CFR § 234.217 & GO 75D 6.2).
- "J" box and liquid tight not properly secured at gate "A" (CFR § 234.211).

- Flasher not properly secured (49 CFR § 234.211).
- Lights out on cantilever (49 CFR § 234.217) (SDTI corrected on site).
- Defective gate striping on 3 gates (MUTCD 8C.04).
- Cross buck and 2 track signs out of compliance (49 CFR § 234.245).
- Labels in cantilever "J" box missing (49 CFR § 234.239).

Severin:

- Staff noted missing 2-track sign (MUTCD 8B.03)
- Unsecure "J" box (49 CFR § 234.211).
- Gate arm height out of spec. (MUTCD 8C-1).
- Flasher not properly secured (49 CFR § 234.211).
- Flashers not directed towards traffic (49 CFR § 234.217 & GO 75D 6.2)

Arnele:

- Staff found as-build plans do not match what is installed in signal house.
- "B" gate has 4 sets of flashers installed and current plans show 2 sets of flashers. Plans also show multiple colors. Plans are as-build or construction copies. (49 CFR § 234.201).
- Cross bucks and 2 track signs are out of compliance. (49 CFR § 234.245).
- Gate "A" "J" box is unsealed. (SDTI re-sealed box on site) (GO 128 41.6).

Insulation Resistance Testing:

Staff conducted a record inspection for insulation resistance preventive maintenance (PM's) 10-year inspection. Staff noted SDTI currently has 36 locations which are 6 months overdue from required inspection interval. SDTI acknowledged the finding and implemented a plan to bring all overdue tests up to date within 6 weeks.

**Staff notes defects found during the Field inspection were not recorded on SDTI's Inspection Records.

Recommendations:

7. SDTI must maintain their grade crossing equipment as required by GO 75 3, GO 75D 5, GO 75D 6.2, GO 128 41.6, 49 CFR §§ 234.201, 234.211, 234.217, 234.245, 234.239, and 234.273, MUTCD 8B.03 and MUTCD 8C-1.

8. SDTI Wayside must ensure grade crossing & signal equipment inspection activities, defects, and corrective actions are scheduled on work orders.

9. SDTI Wayside Management must conduct random inspections of maintainer corrective actions to ensure all grade crossings are being maintained according to regulations.

14-F. **Equipment Maintenance Program: Measuring and Testing Instrumentation**

No findings of non-compliance, no recommendations.

15-A. **Maintenance Audits and Inspections – Light Rail Vehicles**

Finding of Non-compliance:

1. Hi-rail vehicles (437, 441) had strobe light inoperable;
2. Hi-rail vehicle (441, 448, 465) had first aid decal missing;
3. Hi-rail Vehicle 465 had worn shunts;
4. Hi-rail 440 vehicle certification decal was missing.

Recommendation:

10. SDTI must ensure that hi-rail vehicles found with defective items are noted, corrected, continue to follow requirements of 49 CFR Part 214 Railroad Workplace Safety, Subpart D.

15-B. **Maintenance Audits and Inspections – Traction Power Inspection**

Finding of Non-compliance:

Substation Quarterly inspections are not being performed within the respective time frame according to Standard Operating Procedure (SOP) SUB-STA 2.0.

Recommendation:

11. SDTI must review and ensure that all Substation Inspections are being performed and completed within their respective time frames according to SOP SUB-STA.2.0.

15-C. **Maintenance Audits and Inspections – Grade Crossing Safety Inspection - Signal**

Finding of Non-compliance:

S40:

- 41B "J" box not sealed. (GO 128 41.6) (Signal Crew sealed on site)
- MCM bonds missing SOP SIG-2014. Record review did not show any defect as to such.

E22:

- Signal mast E22RA background needs painting. (GO 75 D 9.3.)
- Signal Mast "J" box not sealed (GO 128 41.6) (Signal crews sealed on site).
- Ground wire is missing. (GO 143 10.09.)
- Vegetation encroaching on overhead wires. (GO 143 9.12 & GO 95 35.)
- Vegetation around and growing into case. (GO 143 9.12 & GO 118 A.)
- No ID on case. (GO 143 B 10.05.)

Recommendation:

12. SDTI must maintain vegetation clearances, maintain coloring of back grounds and masts on signal heads, replace missing ground wire, and ID signal case as required by General Orders 75D, Section 9.3; 95, Rule 35; 143B, Section Nos. 9.12,10.05, 10.09; 128 Rule 41.

13. SDTI must replace MCM bonds as needed per SOP SIG-2014

15-D. **Maintenance Audits and Inspections – Switch and Turnout Inspection**

Findings of Non-compliance:

Greenline/Orangeline:

A. Baltimore Junction Interlocking**:**

E-20 Interlocking - staff noticed several pandrol clips making contact (49 CFR § 213.33) with a huck bolt on an insulated joint.

Switch 19-B - loose bolts on heel block (49 CFR § 213.135.06)

E-345 spur track - loose brace plates (49 CFR § 213.133.8), worn switch point (49 CFR § 213.135 (H)), switch target (red) faded (49 CFR § 213.133 (A)).

Orange Line:

Switch E 21A - walkway needs ballast (G.O 118A), broken frog plates (49 CFR § 213.123)

Green Line:

San Diego State University (SDSU) Tunnel and Aerial Section - track crossing (diamond) switches and aerial track in compliance.

SDSU West Portal - vegetation on right of way between Milepost 11.0 to 13.0.

Blue Line:

Switch N31-B - chipped switch point (49 CFR § 213.135)

Recommendation:

14. SDTI must comply with G.O. 118-A walkway standards and G.O 143-B, Sections 9.01; 9.12; 14.05.

15. SDTI must comply with 49 CFR §§ 213.33, 212.123, 213.06, 213.133, 213.133(A), 213.133(B), 213.135.06 requirements.

16-A. **Training and Certification Program: Train Operators, Controllers, and Line Supervisors**

No findings of non-compliance, no recommendations

16-B. **Training and Certification Program: LRV Maintenance Employees**

No findings of non-compliance, no recommendations

16-C. **Training and Certification Program: Wayside Maintenance Employees**

Finding of Non-compliance:

Copies of Maintenance of Way (MOW) efficiency test and compliance observation results are not forwarded to System Safety to enable System Safety to review and be aware of MOW safety trends.

Recommendation:

16. SDTI shall institute a program or policy to ensure System Safety receives copies of efficiency test and compliance observations related to Wayside maintenance and LRV maintenance rules compliance. SDTI should consider updating Section 13 of the SSPP to include the other rules compliance activities it conducts.

17. **Configuration Management**

No findings of non-compliance, no recommendations.

18. **Local, State, and Federal Requirements**

No findings of non-compliance, no recommendations.

19. **Hazardous Materials Program**

No findings of non-compliance, no recommendations.

20. **Drug and Alcohol Program**

No findings of non-compliance, no recommendations.

21. **Procurement**

No findings of non-compliance, no recommendations.

22. **Personal Electronic Device Use / In-Cab Cameras**

No findings of non-compliance, no recommendations.

23. **Roadway Worker Protection Program**

Finding of Non-compliance:

During random inspection of Roadway Worker Protection (RWP) at two locations (Gaslamp, C Street), Staff noted watchman from the Facilities Department being distracted from his or her duties.

Recommendation:

17. Staff recommends SDTI conduct a refresher course for Facilities Department flaggers and conduct random/unannounced inspection during the employee duties course to ensure compliance to SDTI's Roadway Worker Protection rules and GO175-A requirements.

APPENDICES

A. Abbreviations List

B. SDTI 2018 Safety Review Checklist Index

C. SDTI 2018 Safety Review Recommendations List

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APPENDIX A

ABBREVIATION and ACRONYM LIST

Abbreviation / Acronym	Description
CAP	Corrective Action Plan
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
FTA	Federal Transit Administration
GO	General Order
ISA	Internal Safety Audit
LRV	Light Rail Vehicle
MOU	Memorandum of Understanding
MTS	Metropolitan Transit System
RSD	Rail Safety Division
SANDAG	San Diego Association of Governments
SDTI	San Diego Trolley, Inc
SOP	Standard Operating Procedure
SSPP	System Safety Program Plan
T/O	Train Operator

APPENDIX B
2018 SDTI SAFETY REVIEW CHECKLIST INDEX

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14-G	Facilities and Equipment Inspections: Track and Wayside (ROW)
15-A	Maintenance Audits and Inspections: Rail Vehicles (Revenue and Non-revenue)
15-B	Maintenance Audits and Inspections: Traction Power System
15-C	Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance
15-D	Maintenance Audits and Inspections: Tracks and Turnouts
15-E	Maintenance Audits and Inspections: WP&S Quarterly Audit Program
16-A	Training and Certification Programs: Train Operators, Controllers, and Line Supervisors
16-B	Training and Certification Programs: Maintenance Employees
17	Configuration Management and Control
18	Local, State, and Federal Requirements: Employee Safety Program
19	Hazardous Materials Program
20	Drug and Alcohol Program
21	Procurement Process

22	CPUC GO172 – Personal Electronic Device Prohibitions / In-Cab Cameras
23	CPUC GO175 – Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems

APPENDIX C
2018 TRIENNIAL SAFETY REVIEW RECOMMENDATIONS LIST

No.	Recommendation	Checklist No.
1	SDTI must ensure that any changes to the SDTI SSPP always result in a new version number and date to prevent inconsistencies. SDTI should consider updating their SSPP, Section 4 with that requirement.	4
2	SDTI needs to clarify roles and responsibilities of SANDAG and SDTI in the System Safety Program Plan and the Configuration Management Plan. The safety certification process responsibilities as described in both documents should be clear and consistent.	7
3	SDTI must ensure Safety Sensitive Employees are not on duty more than 12 consecutive hours, as required by General Order 143-B, Section 12.04 Hours of Service Requirements, and clarify for field and OCC staff what constitutes an emergency.	13-C
4	SDTI must correct Bridge Inspection defects found within the prescribed time frame, in a timely manner, and track them until corrective action(s) are implemented.	14-C
5	SDTI Wayside Department must provide the inspection results report Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations identified during Tunnel, Bridge, and Aerial Structure inspections, to the Safety Department.	14-C
6	SDTI must review inspections forms, ensure they are filled out completely, tracked, and provide corrective action plans for any and all hazards according to OCS Book of Standards and SSPP Section 15.1	14-D
7	SDTI must maintain their grade crossing equipment as required by GO 75 3, GO 75D 5, GO 75D 6.2, GO 128 41.6, 49 CFR §§ 234.201, 234.211, 234.217, 234.245, 234.239, and 234.273, MUTCD 8B.03 and MUTCD 8C-1.	14-E
8	SDTI Wayside must ensure grade crossing & signal equipment inspection activities, defects, and corrective actions are scheduled on work orders.	14-E
9	SDTI Wayside Management must conduct random inspections of maintainer corrective actions to ensure all grade crossings are being maintained according to regulations.	14-E

10	SDTI must ensure that hi-rail vehicles found with defective items are noted, corrected, continue to follow requirements of 49 CFR Part 214 Railroad Workplace Safety, Subpart D.	15-A
11	SDTI must review and ensure that all Substation Inspections are being performed and completed within their respective time frames according to SOP SUB-STA.2.0.	15-B
12	SDTI must maintain vegetation clearances, maintain coloring of back grounds and masts on signal heads, replace missing ground wire, and ID signal case as required by General Orders 75D, Section 9.3; 95, Rule 35; 143B, Section Nos. 9.12,10.05, 10.09; 128 Rule 41.6.	15-C
13	SDTI must replace MCM bonds as needed per SOP SIG-2014.	15-C
14	SDTI must comply with G.O. 118-A walkway standards and G.O 143-B §§ 9.01; 9.12; 14.05.	15-D
15	SDTI must comply with 49 CFR §§ 213.33, 212.123, 213.06, 213.133, 213.133(A), 213.133.8, 213.135.06 requirements.	15-D
16	SDTI shall institute a program or policy to ensure System Safety receives copies of efficiency test and compliance observations. related to Wayside maintenance and LRV maintenance rules compliance. SDTI should consider updating Section 13 of the SSPP to include the other rules compliance activities it conducts.	16-C
17	Staff recommends SDTI conduct a refresher course for Facilities Department flaggers and conduct random/unannounced inspection during the employee duties course to ensure compliance to SDTI's Roadway Worker Protection rules and GO175-A requirements.	23

APPENDIX D

2018 SDTI SAFETY REVIEW CHECKLISTS

CPUC develops a series of checklists prior to each triennial safety review of California Rail Transit Agencies. These checklists are based on the 21 elements required to appear in each agency's SSPP by 49 CFR Part 659 and are customized according to the SSPP and the unique features of the agency under review.

SDTI received a draft version of these checklists, showing only the Reference Criteria and Element/Characteristics and Method of Verification fields 30 days prior to the audit start. Although each checklist provides guidance for the activities, CPUC reviewers are authorized to inquire about and inspect any aspect of the SDTI system they determine to be relevant to system safety and the checklist in question.

CPUC reviewers provided immediate feedback to SDTI representatives regarding any initial findings and potential recommendations following each checklist's activities. The reviewers then revise the checklist document to include a summary of their review, findings of non-compliance, recommendations for corrective action, and any additional comments. The complete checklists are provided below.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**1**	**Element**	**Policy Statement and Authority for System Safety Program Plan: Management Involvement and Commitment to Safety**
Date of Audit	June 4, 2018 11:00-12:00	**Department(s)**	SDTI Senior Management
Auditors/ Inspectors	Daren Gilbert Stephen Artus Noel Takahara Joey Bigornia Mike Borer Jason Dixon Debbie Dziadzio	**Persons Contacted**	Wayne Terry, Chief Operations Officer - Rail David Bagley, System Safety Manager Christopher Walger, Transportation Controller/Safety – Rail

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Policy Statement and Authority for System Safety Program Plan: SDTI Senior Management Involvement and Commitment to Safety

Interview the SDTI Chief Operating Officer (COO) to discuss:

1. Source, frequency and depth of safety information provided to Senior Management, whether safety is included as a regular topic at SDTI Senior Management meetings, and how safety information is communicated.
2. Methods and incentives included in the management performance system to facilitate a system safety culture within the organization.
3. Types of formal meetings held and attended by SDTI Senior Management to discuss safety performance, such as ongoing evaluation of goals and targets.

4. The CEO's and COO's awareness of high priority safety issues related to operations and capital projects.
5. The CEO's and COO's awareness of the status of all corrective actions generated by the System Safety Department through internal safety and security audits, the hazard management process, accident/incident investigations, or other sources.
6. The Safety Department's reporting relationship to SDTI's executive and senior management, and management's participation in safety activities.
7. Which individuals and departments are involved in making safety decisions and to what degree senior management is involved?
8. Scope of senior management involvement, coordination, and communication in developing SSPP revisions.

FINDINGS AND RECOMMENDATIONS

Activities:

1. The SDTI COO stated that close coordination takes place in working with the SDTI Safety Manager. Informal meetings are frequent in nature due to their offices being in close proximity of each other (on the same floor within several feet). The COO stated participation in weekly staff meetings comprised of the COO, Safety Manager, and SDTI department heads from LRV Maintenance, Wayside, Operations, and Facilities Maintenance. The COO stated that a high-level monthly meeting also takes place that includes the safety manager. The monthly safety meetings are comprised of the CEO, COO, and Safety Manager. In addition, the Safety Manager currently presents Annual Reports at Board Meetings.
2. The reviewers were shown a video message that is given to new employees that stresses the importance of employee and passenger safety. The MTS CEO, SDTI Safety Staff and other members of SDTI management deliver messages in the video to stress the importance of safety. The SDTI COO mentioned their PIP program that establishes annual performance incentive goals.

The COO credited the program for helping reduce operating rules infractions. The SDTI COO discussed various safety related awards and recognitions that are given to SDTI employees. Train Operators that are accident free for a given time period can be awarded with time off with pay. An employee excellence program recognizes personnel with a good safety record, attendance, minimal rules infractions, etc. The SDTI COO described the SDTI "Rule of the Week" program that helps personnel focus on relevant issues such as trends or upcoming major events such as Comic-Convention. The SDTI COO stated that the Rule of the Week program promotes discussion between Train Operators and their Supervisors as well.

3. Weekly Staff Meeting with all Department Managers and the COO; Monthly Safety Meeting with the CEO, COO, and Safety Manager; Monthly Board Meetings; as described above.
4. The SDTI COO discussed his involvement in improving processes related to new vehicle inspections and certification. SDTI personnel were inserted into the new vehicle inspection process in areas where 3rd party inspectors were found to be deficient. The SDTI COO noted his involvement in the decision-making process to have the SDTI RWP certification program managed by a 3rd party. The SDTI COO noted his involvement in the improvement of the downtown C Street and Park Blvd corridors which required working with the City of San Diego to install numerous safety provisions such as delineators and eye level signs. The SDTI COO informed the reviewers that the safety improvements in the San Diego downtown corridor was recognized by APTA and SDTI received the 2018 APTA Gold Award for their efforts.
5. The SDTI COO stated that in general he will immediately be informed of issues involving CPUC inspection report findings and receives regular updates during the weekly meetings of any issues related to corrective actions, accident investigations, internal safety and security review reports, etc.
6. The SDTI Safety Manager reports to the SDTI COO. The SDTI Safety Manager formally meets with the SDTI COO and MTS CEO during the monthly meetings as was stated earlier by the SDTI COO.

7. The SDTI COO described a process where the Safety Department is empowered to make decisions in consultation with Department heads that can take place during periodic (monthly) Safety Committee Meetings. Issues can be formally reported to the COO during the weekly meetings.
8. The SDTI COO stated that to the best of his knowledge and based on the Internal Safety Audit process they are in substantial compliance with the SDTI SSPP. The SDTI COO informed the reviewers that a MTS consultant/contractor performed a gap analysis of the current SDTI SSPP and Safety Management System (SMS) requirements. The SDTI Agency Safety Plan is in draft form and ready for implementation when the FTA 49 CFR § 674 rules changes apply.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**2**	**Element**	**System Safety Program Plan: Goals and Objectives**
Date of Audit	June 4, 2018 1:30-4:00	**Department(s)**	SDTI Safety Department
Auditors/ Inspectors	Daren Gilbert Noel Takahara Joey Bigornia	**Persons Contacted**	David Bagley, System Safety Manager Christopher Walger, Transportation Controller/Safety – Rail

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Goals and Objectives

Interview SDTI Senior Management and review appropriate records to:

1. Determine how SDTI goals and objectives are evaluated, documented and achieved via a reduction in accidents, hazards, rule violations, safety metrics, etc.
2. Determine how safety performance is reported to the Chief Executive Officer (CEO) and Chief Operating Officer (COO) or other senior management (i.e., monthly, quarterly or annual safety reports).
3. Determine if the CEO receives sufficient safety information to ensure SDTI is meeting its safety goals and objectives. Are rule violations and other key safety metrics being tracked and reported to the COO?

FINDINGS AND RECOMMENDATIONS

Activities:

1. The SDTI System Safety Manager provided the reviewers with examples of items the Safety Department tracks, trends, and draft reports of which included emergency brake applications,

Roadway Worker Protection (RWP) near misses, and radio trouble report logs. Emergency brake application reports are self-reported by the train operators. Refer to Checklist #9 of this report for more detail regarding safety data collection and analysis.

2. SDTI System Safety Manager discussed the following: Weekly meetings with the SDTI COO and other Department heads, Monthly CEO meetings, Monthly CEO Rail Report, Monthly Board Meetings.
3. The Reviewers do not have safety concerns regarding the flow of safety information to the MTS/SDTI COO. The SDTI Systems Safety Manager stated that he attends the monthly CEO meetings that are comprised of the CEO, COO, and safety manager. The reviewers understand this meeting does not include department heads in contrast to the weekly staff meetings. The reviewers note this appears to be a good formal process that provides the SDTI System Safety Manager with a method to directly inform the MTS CEO of any safety issues or relevant observances.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**3**	**Element**	**Overview of Management Structure**
Date of Audit	June 4, 2018 1:30-4:00PM	**Department(s)**	System Safety Department
Auditors/ Inspectors	Daren Gilbert Noel Takahara Joey Bigornia	**Persons Contacted**	David Bagley, System Safety Manager Christopher Walger, Transportation Controller/Safety – Rail

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Overview of Senior Management Structure

Interview SDTI Senior Management and review appropriate records to:

1. Determine how SDTI's process for integrating safety into SDTI operations and maintenance activities is accomplished.
2. Identify if any safety program deficiencies are a result of inadequate personnel or resources such as difficulties in maintaining schedules for SSPP updates, completing Internal Safety and Security Audits, or performing Accident/Incident Investigations.
3. Determine if the Safety Department has personnel resources allocated to support interdepartmental coordination on safety issues and concerns?

FINDINGS AND RECOMMENDATIONS

Activities:

1. The reviewers note that the formal monthly Safety Committee meetings appear to be a good process to integrate safety into SDTI operations and maintenance activities. The sign in sheet for the March 29, 2018 Safety Committee Meeting indicates a well-attended meeting of twenty-two (22) SDTI personnel. The SDTI System Safety Manager chairs the meeting and invites 1 member of management and 1 member of rank and file from each department where available. The following departments were represented in the Safety Committee Meeting: Transportation, Training, LRV Maintenance, Wayside Maintenance, Revenue, Code Compliance, Stores, Facilities Maintenance, Track Maintenance, Transportation, PTEA, Planning, Assignments. The meeting minutes for the March 29, 2018 Safety Committee meeting indicate that SDTI is tracking issues that were identified in previous meetings and adding new items as they surface.
2. The SDTI Safety Department is primarily staffed by two personnel (Systems Safety Manager and Transportation Controller-Safety). The SDTI System Safety Manager did not state an inability to perform departmental safety related duties as a result of inadequate staffing. The reviewers also have not observed any issues related to inadequate staffing however would comment that the loss of one out of two staff has the potential to present difficulties.
3. The SDTI Safety Department is involved as well as SANDAG safety related personnel or contractors for the Mid-Coast Project.

<u>Findings of Non-compliance:</u>
None

<u>Comments:</u>
None

<u>Recommendations:</u>
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**4**	**Element**	**System Safety Program Plan: Control and Update Procedure**
Date of Audit	June 4, 2018 1:30-4:00PM	**Department(s)**	System Safety Department
Auditors/ Inspectors	Daren Gilbert Noel Takahara Joey Bigornia	**Persons Contacted**	David Bagley, System Safety Manager Christopher Walger, Transportation Controller/Safety – Rail

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Control and Update Procedure
Interview SDTI System Safety Department and review appropriate records to:

1. Verify the required annual SSPP compliance letter by CEO has been sent to the CPUC for the past 3-years per SSPP Element 4.0.
2. Verify SSPP reviews and changes are comprehensive in scope, within required timeframes, and are approved by the designated staff.

FINDINGS AND RECOMMENDATIONS

Activities:

1. SDTI provided the reviewers with letters dated February 11, 2016, February 3, 2017, and January 25, 2018 indicating that review of the SDTI SSPP had taken place and that modification/revision was not necessary. The SDTI SSPP version 10 dated December 2014 is the current version in use.

2. While performing checklist No. 13-A, Staff identified that there may be inconsistencies between the SSPP versions used on SDTI property. Staff asked the Transportation Department Superintendent why the SDTI SSPP states a maximum line speed of 55mph even though maximum vehicle speeds are stated to be 50mph. The SSPP provided to Staff states a maximum vehicle speed of 50mph on page 8, however Staff identified that the SSPP being used by the Transportation Department stated a 55-mph maximum vehicle speed although the SSPPs were both the same versions (revision 10 dated December 2014).

Findings of Non-compliance:

1. The SDTI Transportation Department SSPP with the same version and date as the SDTI SSPP provided to staff has a different maximum vehicle speed on page 8.

Comments:

Although there was speculation on how staff was provided an incorrect version, SDTI's process and records, including Staff approvals, indicate it has reviewed and updated its SSPP, if necessary, as required. Subsequent investigation by SDTI indicates that the versions in use by SDTI personnel are correct and consistent. However, the fact remains that the version with the same version number and date provided to Staff contained an inconsistency and was in error. That should not occur; if any edits to the document are made, even corrections identified just after a new version is issued, good document control practices dictate the version number and date must be revised.

Recommendation:

SDTI must ensure that any changes to the SDTI SSPP always result in a new version number and date to prevent errors and inconsistencies. SDTI should consider updating their SSPP, Section 4 with that requirement.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**5**	**Element**	**System Safety Program Plan: Implementation Activities and Responsibilities**
Date of Audit	June 4, 2018 1:30-4:00PM	**Department(s)**	System Safety Department
Auditors/ Inspectors	Daren Gilbert Noel Takahara Joey Bigornia	**Persons Contacted**	David Bagley, System Safety Manager Christopher Walger, Transportation Controller/Safety – Rail

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Implementation Activities and Responsibilities

Interview SDTI System Safety Department and review appropriate records to:

1. Verify each manager, department, and contractor is charged with responsibility and accountability for SSPP implementation, enforcement, and effectiveness.
2. Identify any challenges each manager, department, and contractor have in performing SSPP or general safety tasks.
3. Verify management accountability for the performance of safety-related activities or if serious/potential deficiencies are found.

FINDINGS AND RECOMMENDATIONS

Activities:

1. The SDTI System Safety Manager described the process in which every new SDTI employee receives a copy of the SDTI SSPP during new employee training. Receipt is documented by signature and date. The SDTI SSPP has not been updated since 2014 and staff has identified potential needed revisions in CL# 4. In the case of an update, older versions of the SDTI SSPP on the property may need to be replaced.
2. Specific challenges were not identified at this time.
3. The SDTI System Safety Manager provided the reviewers with the MTS/Trolley Management Staff Performance Appraisal form. On this form there are 19 job related items (such as Job Knowledge, Quality of Work, Communication, etc.) that are evaluated on a rating scale of 4 (distinguished performance) to zero (unacceptable). Safety Effectiveness is one of the 19 items that is evaluated on this form. The SDTI System Safety Manager stated that the appraisal form results can affect employee merit and pay.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**6**	**Element**	**Hazard Management Process**
Date of Audit	June 7, 2018 0900-1100	**Department(s)**	System Safety Department Transportation Department
Auditors/ Inspectors	Claudia Lam Daniel Kwok	**Persons Contacted**	David Bagley, System Safety Manager Chris Walger, Transportation Controller Safety – rail Division

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazard Management Process

Interview SDTI representatives and review records from the past 3-years to determine whether:

1. SDTI is identifying hazards according to the SSPP Section 6.
2. The System Safety Department has an established database to track identified hazards through analysis and resolution.
3. The System Safety Manager/Transportation Superintendent is reviewing operational hazards to assess severity and reporting unacceptable hazards to CPUC as specified by the SSPP.
4. Identified hazards are evaluated, corrective actions are identified, the department responsible for implementation is identified, and a schedule for completion is established.

5. The System Safety Department follows up on outstanding corrective actions to mitigate or resolve hazards.
6. SDTI has a specified process for reporting hazard resolution activities to CPUC as required by General Order 164-D, Sections 6e and 6f.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed System Safety Manager, and Transportation Controller Safety and determined the following:

1. SDTI identifies hazards through the sources identified in its SSPP Section 6.
2. SDTI uses a spreadsheet named "Hazard Management Tracker" to capture and track identified Corrective Action Plans (CAPs) from all hazards.
3. During the 2015 Triennial review, Staff made two recommendations on hazard management. Since then, Safety department developed a spreadsheet named "Hazard Management Tracker" as a tool to track and evaluate the severity of hazard.
4. Safety Manager uses Military Standard (Mil Std.) 882E as stated in its SSPP to assign the hazard categories. Staff believes this is a major improvement on hazard management from the 2015 Triennial Review Hazard Management recommendation. The spreadsheet also includes information such as departments responsible for implementation, and a completion schedule.
5. SDTI Safety Department follows up on outstanding corrective actions to mitigate or resolve hazards.
6. As of June 2018, there was no unacceptable hazard identified. If there's any unacceptable hazard identified based on Mil. Std 882E in its SSPP, SDTI will report it to CPUC within two hours as required by GO 164-D.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**7**	**Element**	**System Modification**
Date of Audit	June 5, 2018 13:00-15:00	**Department(s)**	SANDAG MTS MTS Safety and Security Department
Auditors/ Inspectors	Ainsley Kung Jamie Lau Joey Bigornia	**Persons Contacted**	Thang Nguyen, MTS Dale Neuzil, SANDAG Lorenzo Garrido, SANDAG Michael Diana, MTS David Bagley, MTS Safety and Security Department John Haggerty, SANDAG

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
3. SANDAG Configuration Management Plan (CMP) dated 2018

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Modification

Interview SDTI/SANDAG representatives and review appropriate records to determine whether:

1. The Safety Department is involved in assessing/ensuring safety concerns are addressed in system modifications by identifying their specific activities in the process such as documentation participation in testing and inspections and observations performed at work sites.

2. Review three recent system modification projects implemented and determine if:
   a. The Project followed SSPP requirements which included an evaluation of potential hazards to the system and no unauthorized modifications were implemented.
   b. The hazards were addressed, included an evaluation of potential hazards arising from the proposed modification, and approval documented.
   c. Any system modification changes made are shown in final As-Built drawings for the facility, vehicle and/or equipment specifications.
   d. All required approvals are documented prior to implementation.

FINDINGS AND RECOMMENDATIONS

Activities:

Per MTS SDTI's System Safety Program Plan, Rev 10, dated December 2014, since January 1, 2003, the San Diego Regional Transportation Consolidation Act, directed consolidation of two main functions among SANDAG, MTDB (now MTS) and 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 MTS LRT design criteria. SANDAG engineering staff administers construction contracts for, and under the direction of, the MTS Board and executive staff.

SANDAG builds the capital projects; after construction completion, the rail transit system assets are transferred to MTS for operation and maintenance.

Staff interviewed staff from both SANDAG and MTS and determined the following:

1. The safety certification process is being applied to the Mid-Coast Transit Corridor Project and the SD9 LRV Procurement Project. Smaller projects such as the OCS Insulator and Catch Cable Replacement Project is programmed through MTS's State of Good Repair Program Funding, thus not meeting the Major Project definition as stated in G.O. 164-D. However, MTS Safety and Security Manager actively attends the project meetings and receive updates on project progress.

For each system modification project, Safety Department attends monthly safety and security certification meetings. The meetings discuss open and completed items related to the project. Safety Department uses Project Solve, a document control service, to view project-related documents, such as meeting minutes and conformance certificates. Safety and security certificates are signed by Safety Department for approval. Ultimately the Safety and Security Certification Plan (SSCP) is signed by MTS Chief Executive Officer, before it is submitted to CPUC for approval.

2. Staff reviewed the following three projects:
   - Mid-Coast Extension;
   - MTS SD9 Light Rail Vehicle Procurement Project; and
   - OCS Insulator and Catch Cable Replacement.

MTS Safety and Security Manager (SSM) is actively involved in the safety certification process of the above projects and is the chair of Safety and Security Review Committee (SSRC) and Fire Life Safety and Security Committee (FLSSC). SSM involves various MTS departments to provide input during the committee

meetings. Issues that come up will be brought to the SSRC and/or FLSSC for discussion and resolution.

Current process for SD9 LRV acceptance is following the previous SD8 LRV Procurement Safety Certification Plan Process, which was approved by Commission Resolution ST-134, dated September 22, 2011.

The projects follow the Safety Certification Process as described in SDTI SSPP, Rev 10, updated December 2014, and in SANDAG Configuration Management Plan, Rev 4, updated December 2017.

SDTI indicates it is ultimately responsible for self-certifying a new rail system. However, the SDTI SSPP and the SANDAG CMP are inconsistent in who is ultimately responsible for safety certification of projects.

Findings: of Non-compliance

Staff identified an inconsistency between the SDTI SSPP and the SANDAG CMP on which agency is ultimately responsible for the safety certification of projects.

Comments:

Staff notes that SDTI and SANDAG are currently in construction on the Mid-Coast Project and Staff is fully engaged in the project oversight. Staff acknowledges that the current project and its Commission-approved Safety Certification Plan are being effectively implemented by SDTI and SANDAG in accordance with that plan.

Recommendations:

SDTI needs to clarify roles and responsibilities of SANDAG and SDTI in the System Safety Program Plan and the Configuration

Management Plan. The safety certification process responsibilities as described in both documents should be clear and consistent.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**8**	**Element**	**Safety and Security Certification**
Date of Audit	June 5, 2018 15:00-17:00	**Department(s)**	SANDAG MTS Safety and Security Department
Auditors/ Inspectors	Ainsley Kung Jamie Lau Joey Bigornia	**Persons Contacted**	Thang Nguyen, MTS Dale Neuzil, SANDAG Lorenzo Garrido, SANDAG Michael Diana, MTS David Bagley, Safety and Security Department John Haggerty, SANDAG

REFERENCE CRITERIA

1. CPUC General Order 164-D/E
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety and Security Certification

Interview the SANDAG/MTS representative(s) involved in the Safety Certification Program (SCP) and review the records of the Mid-Coast Extension, MTS Light Rail Vehicle Procurement, and any minor projects to determine whether:

1. A formal SCP has been submitted by SDTI/SANDAG and approved by the Commission.
2. Each submitted SCP was consistent with General Order 164-D, the SSPP, and applicable reference documents.

3. Staff has participated throughout Preliminary Engineering Design Phase and other phases.
4. All design and construction changes were properly documented and addressed in the Safety Certification process.
5. All identified hazards have been eliminated or controlled as required under the SCPs.
6. All certifiable elements for Safety Certified projects during the past three years were identified for the Safety Certification Verification Report and submitted to CPUC in a timely manner, according to the requirements of General Order 164-D.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed MTS and SANDAG representatives for the following projects:

- Mid-Coast Corridor Transit Project;
- MTS SD9 Light Rail Vehicle Procurement Project; and
- OCS Insulator and Catch Cable Replacement Project.

Staff have the following observations:

1. Each SCP was consistent with GO 164-D, MTS's SSPP and SANDAG's Configuration Management Plan (CMP). A SCP has been submitted to and approved by the Commission for Mid-Coast Corridor Transit Project and MTS SD9 Light Rail Vehicle Procurement Project. The Commission approved the Mid-Coast Corridor Transit Project in Resolution ST-186. The Commission approved the SD9 Light Rail Vehicle Procurement Project SCP in Resolution ST-217. No SCP was submitted for the OCS Insulator and Catch Cable Replacement project because it SANDAG stated this project doesn't meet the criteria for a SCP. It is a minor

project funded by MTS's State of Good Repair Program. Staff concurs.

2. See answers to question 1 above.

3. Staff participated in the projects starting in the Preliminary Engineering Design Phase. Activities included attending Fire Life Safety and Security Committee (FLSSC) meetings, attending Safety and Security Certification Review Committee (SSCRT) meetings, witnessing tests for each project, and coordinating inspections performed by the CPUC Rail Transit Safety Branch's Inspectors. Staff was presented with FLSSC and SSCRT meeting minutes and sign-in sheets, which documents the meeting agenda, discussions and open items status.

4. Design and construction changes were documented with a project track sheet managed by the Project Manager. Designers are required to close out their responsible items. Open items are discussed and tracked in the projects' Safety and Security Certification Review Team meetings for each project.

5. Besides tracking hazards and open items in FLSSC and SSCRT meetings, the Mid-Coast Corridor Transit Project conducted a hazard analysis for the project and its surrounding sites, due to the fact that the project alignment is adjacent to the existing North County Transit District heavy rail alignment (also known as San Diego Northern Railroad) corridor. The Adjacent Railroad Hazards – Site-Specific Hazard Analysis Report, dated November 10, 2014, identifies hazards and whether the hazards have been eliminated or controlled as required under the project's SCP. The report describes the process and findings of the Site-Specific

Hazard Analysis for the potential of derailments on an adjacent railroad that could affect the Mid-Coast Corridor Transportation Project.

6. There were no SSCVR available for review during this triennial audit, since there were no major projects completed within the last 3-year period. The Mid-Coast Corridor Transit Project and the SD9 LRV Procurement Project are both currently in progress. Both projects reference G.O. 164-D requirements for a final SSCVR at the conclusion of project in the projects' SSCP and Commission Resolution.

7. Staff reviewed the following documents for the above-mentioned projects:
    - Mid-Coast Corridor Transit Project Safety and Security Certification Plan, dated December 22, 2015;
    - Mid-Coast Corridor Transit Project Adjacent Railroad Hazards – Site-Specific Hazard Analysis Report, dated November 10, 2014;
    - FTA Quarterly Review Meeting #11 Report, dated March 1, 2018 – Mid-Coast Corridor Transit Project Summary and Status Updates;
    - San Diego Light Rail Vehicle Procurement Project Safety and Security Certification Plan, dated February 6, 2018; and
    - Completed RTSS-9 Checklist for SD9 LRV Procurement Project SSCP, dated February 15, 2018.

<u>Findings of Non-compliance:</u>
None.

<u>Comments:</u>
None.

Recommendations:

None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**9**	**Element**	**Safety Data Collection and Analysis**
Date of Audit	June 5, 2018 0900-1100	**Department(s)**	System Safety Department Light Rail Vehicle Department Wayside Department
Auditors/ Inspectors	Claudia Lam Daniel Kwok	**Persons Contacted**	David Bagley, System Safety Manager Chris Walger, Transportation Controller Safety – rail Division

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety Data Collection and Analysis

Interview the SDTI representative(s) responsible for safety data acquisition and analysis, and review the safety data acquisition and analysis program requirements to determine whether:

1. The data collected includes, at minimum: information concerning SDTI accident and incidents, employee performance failures, equipment failures, procedural deficiencies, derailments and rules violations in SDTI's Yard.
2. The safety data is supplied by, and collected from, all departments, including Operations, Risk Management, and Maintenance, as appropriate.
3. The safety data collected is analyzed and incorporated into SDTI's Hazard Identification and Resolution Process as necessary.

4. The safety data and analyses are made available to SDTI departments for use in planning their safety-related activities and implemented according to SSPP.
5. Periodic reporting regarding the results of the safety data analysis is provided to the SDTI Senior Management as appropriate and how this is reported to the FTA's National Transportation Database (NTD).

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed System Safety Manager, and Transportation Safety Controller regarding the Safety Data Collection and Analysis. Staff also reviewed relevant program documentation and determined the following:

1. SDTI provided a spreadsheet that tracks the reportable accident data including GIS information, date, time, location, FRA territory, report to National Transportation Database (NTD), and emergency brake application (train) by location. Only Safety Department has access to the master accident spreadsheet. In addition, Trolley Operational Support Application (TOSA) tracks personal injuries, emergency brakes, and unusual occurrence. Different departments track its own employee performance failure.
2. Each department provides its own 6-month summary operations and shares it with Safety and Training Departments.
3. Safety Committee Meetings are held monthly to discuss and analyze the hazards and make the decision for hazard identification and resolution process. The Safety Committee tracks resolution and mitigation during the next monthly meeting to familiarize Staff using the Hazard Matrix. Safety Manager also showed Staff that it used Military Standard (Mil. Std) 882.E to assign the hazard categories.

4. Safety data is communicated to all departments (via department heads) during the Safety and Security Committee Monthly Meeting. Staff reviewed safety committee meetings notes (Sept 2017, Dec 2017, Sept 2016, July 2016, Oct 2015). Executive Staff Meetings meet weekly with includes SDTI executive management. SDTI also holds a Monthly Chief Executive Officer (CEO) Rail Safety Briefings, which focuses on rail specific items (accidents, inspections, CPUC activates on site, rail security). Safety Manager provided two projects: "Downtown Accident Delineators Project" and "Personal Equipment Device Zone" projects for Staff review. Both projects were the result of joint efforts by several departments using the safety data in planning their safety-related activities.
5. Safety Manager reports personal injuries data to National Transportation Database (NTD) on a monthly basis.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**10**	**Element**	**Accident/Incident Investigations**
Date of Audit	June 5, 2018 1200-1300	**Department(s)**	Transportation Department System Safety Department
Auditors/ Inspectors	Claudia Lam Mike Warren Daniel Kwok	**Persons Contacted**	David Bagley, System Safety Manager Chris Walger, Transportation Controller Safety – Rail Division

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 172
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI Accident Investigation Procedures (AIP) dated December 2014 (Identified in SSPP).

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident/Incident Investigations

Interview the SDTI representative(s) responsible, and randomly select at least four CPUC-reportable accidents and/or incidents involving an injury or fatality to determine whether:

1. All accidents and incidents were reported within two hours of occurrence, as required by General Order 164-D, Sections 7.1 and 7.2.
2. All immediately reportable accident or incident notifications to CPUC contained all the information required by General Order 164-D, Section 7.3.

3. All accidents and incidents were investigated in compliance with the requirements of General Order 164-D, Section 8, and the SDTI SSSP AIP.
4. Video recordings from inward-facing in-cab cameras are reviewed under the required conditions listed in General Order 172, Section 4.3.
5. Verify if FRA (on joint corridor), National Transportation Safety Board, and National Transportation Database notifications according to NTD incident reporting threshold.
6. A final report was submitted for each accident or incident according to the requirements in General Order 164-D.
7. Each final report includes identification of:
    a. All evidence processed during the investigation;
    b. Findings of the most probable cause(s);
    c. Findings of contributory cause(s);
    d. Corrective Action Plans (CAPs) to address the identified causes with the goal of minimizing the probability of recurrence;
    e. A schedule for implementing CAPs (if any), including completion date or plan for monitoring progress on an on-going basis.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the System Safety Manager and Transportation Controller Safety regarding the Accident/Incident Investigation for the last 3 years. Staff randomly selected two accidents from each year (2016, 2017, & 2018) and reviewed the following records and documentations with the following results:

- All immediately reportable accidents/incidents were reported to CPUC as required by GO 164-D requirements. MTS reports all reportable accidents/incidents per GO 164-D requirements via telephone within the first 2 hours of the accident/incident and then follow up with an email and/or text notification to the CPUC representative.
- MTS provides all the initial information per GO 164-D, Section 7.3 requirements to the CPUC as stated above.
- Staff randomly selected six accidents and they were investigated in compliance with the GO 164-D requirements, Section 8, and the MTS Accident Investigation Procedure (AIP).
- The accident reports showed MTS has Video recordings from inward-facing in-cab cameras per GO 172, Section 4.3 requirements.
- The accident reports showed FRA, NTSB, and NTD reporting was done depending on the incident reporting threshold. No deficiencies were noted.
- MTS submitted a final report or an EZ report to CPUC depending on the type of accident/incident as per MTS SSPP.
- Each report included a detailed summary of the overall accident/incident investigation, probable cause(s), contributing cause(s) and corrective action plan if applicable. MTS safety manager tracks all the reportable accident/incident with a master spreadsheet.

Staff randomly selected 2 accidents from each year (2016, 2017, & 2018) and reviewed the following reportable accidents/incidents:

7/30/16: Park and G St

- Final report submitted: 8/31/16
- Time of incident: 12:43
- Time reported to CPUC: 12:50
- Non-FRA reportable

- No defects

A. Year 2016:

11/4/16: East of Noelle St

- Final report submitted: 12/29/16
- Time of incident: 21:30
- Time reported to CPUC: 21:50
- Non-FRA reportable
- No defects

B. Year 2017:

5/4/2017: 69th street Grade Crossing

- Final report submitted: 6/4/2017
- Time of incident: 20:13
- Time reported to CPUC: 20:25
- FRA reportable Form 57 submitted
- NTD Form S&S40s
- No defects

8/23/2017: Buena Vista Avenue

- Final report submitted: 9/25/2017
- Time of incident: 18:25
- Time reported to CPUC: 18:25
- Non-FRA reportable
- No defects

8/29/2017: Park & K Street

- Final report submitted: 9/25/2017
- Time of incident: 16:27
- Time reported to CPUC: 16:49
- Non-FRA reportable
- No defects

C. Year 2018:

1/29/2018: Station – Fifth Ave

- Final report: 2/26/18
- Time of incident: 10:28
- Time reported to PUC: 11:24
- Non-FRA reportable
- No defects

1/29/18: Park and G St

- Final report: 2/26/18
- Time of incident: 10:01
- Time reported to PUC: 10:41
- Non-FRA
- Operator recommended (not a CAP) defensive driving reinstruction and confirmed attended 2/19/18
- No defects

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**11**	**Element**	**Emergency Management Program**
Date of Audit	June 06, 2018 1300 - 1700	**Department(s)**	Security Department System Safety Department
Auditors/ Inspectors	Daniel Kwok Rupa Shitole	**Persons Contacted**	David Bagley, Manager of Safety Christopher Walger, Safety Tim Curran, Deputy Director of Transit Security Manuel Guaderrama, MTS Chief of Police Michele Cederberg, Training Supervisor -Transportation

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
3. SDTI System Security Plan (SSP) dated 2018

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Emergency Management Program

Conduct the necessary interviews regarding SDTI's emergency planning, training, and drill/exercise program and review appropriate records prepared during the last three years to:

1. Determine when the last drill/exercise was performed, if an after-action report developed, and if changes to SDTI's Emergency Familiarization Response and/or procedures were necessary. If changes were necessary, how are these changes communicated to SDTI personnel?

2. Determine if SDTI has held periodic Fire Life Safety meetings, emergency response agency familiarization activities have occurred as scheduled and corrective actions have been implemented.
3. SDTI emergency response training:
   a. Review training programs to verify they contain training curriculums for emergency response procedures and activities appropriate for each job classification.
   b. Randomly select six (3) employees from each job classifications and review their emergency response training records to verify training and frequency performed is documented for:
      a. Train Operators
      b. Line Supervisors
      c. Controllers

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI representative(s) and reviewed/noted the following.

1. SDTI Security and Safety Departments work together on establishing all drills and emergency exercises. Safety Department provided a matrix table identifying all drills and exercises for Years 2016-2018. Drill exercise participants included Fire Department, Police, Sheriff's and SDTI employees. SDTI Safety Department in 2016 created a booklet for emergency responder training and is reviewed annually. A sample was provided to Staff for review.
   The Office of Emergency Services (OES) Design Team and SDTI have been working together since 2015 related to emergency

management response.

Staff noted SDTI Tabletop Exercises (TTX) does not generate After Action Reports (AAR), only Drills and Emergency Exercise generates AARs. Each relevant agency involved in the Design Team write their own AAR portion, SDTI writes their own AAR, and all SDTI AAR CAPs are tracked and closed until completion. SDTI noted TTXs are for employees only, they may involve and train all their employees for an emergency scenario, and TTX feedback is provided. SDTI supervisor(s) try to review the feedback forms and train SDTI personal as needed.

Staff reviewed the following documents:

- November 30, 2017: The radioactive testing yard drill. The emergency responders are also taken to Operations Control Center for training.
- June 2016: Coastal Warrior Tabletop Exercise After Action Report resulted in Memorandum of Understanding (MOU) with OES. The drill was a major exercise with different agencies involved.
- December 20, 2017: San Diego MTS 2017 Major Incident Response TTX binder included Exercise Plan, Power Point, Exercise Injects, Sign-in Sheets, Feedback Forms, and Reference Documents.
- February 23, 2018, February 8, 2018, January 18, 2018, December 20, 2017, December 15, 2017, October 30, 2017, October 25, 2017, October 18, 2017, September 27, 2017, and September 14, 2017: Emergency response training for SDTI employee.
- June 16, 2017: SDTI along with SDPD SWAT team conducted a drill in the yard. (Vehicle familiarization and tactics on the two models of trolley cars.) AAR was reviewed and drill CAP was closed on 6/21/2017.

- June 2016, November 8, 2017, and March 15, 2018: SDSU Emergency Drills. Staff verified SDTI performed drills at SDSU per their SSPP requirements each calendar year.
- November 1, 2017: The internal safety and security audit reviewed all emergency management program SOPs.

SDTI states there were no SOPs or rulebook changes within the past 3 years resulting from emergency exercises or otherwise. However, if a revision is required, the SOP is developed and approved, staff is trained on the new SOP, and staff members sign off on new SOP upon receipt; SOPs are given and inspected every 2 years during recertification.

2. Staff reviewed Safety Committee Meeting Minutes dated July 27, 2017, September 21, 2017, October 19, 2017, December 14, 2017, Jan 25, 2018, February 22, 2018, March 29, 2018, and April 26, 2018. SDTI Safety Manager chairs the meetings. The CAPs are not a part of this safety meeting, but Safety Manager has meetings with respective departments who have CAPs from drills/exercises.
   SDTI staff indicated that project specific Fire Life Safety meetings are held. See 2018 SDTI Checklist #8 for review of Fire Life Safety meeting minutes and verification.

3.
   a. Staff reviewed "Rail Division Emergency Responder Training 2018", "Rail Division Emergency Responder Training 2017", "Rail Division Emergency Responder Training 2016" and verified SDTI has training curriculums for emergency response procedures for outside agencies. SDTI noted to staff they hold a "train the trainer" program with San Diego SWAT teams, which occurs on an ongoing basis, to help familiarize SDPD with the system and their capabilities. Staff also reviewed "SDTI Train Operator

Training Program" which covers initial training for Rules and SOPS relating to Emergency Procedures for relevant SDTI employees.

b. Staff randomly selected and reviewed employee recertification records covering Emergency Procedures for the following job classifications:

Position	SDTI Employee	Date Recertified
Line/Yard Supervisor	10802	1/27/2017
Line/Yard Supervisor	56460	4/11/2017
Line/Yard Supervisor	10119	4/11/2017
Controller	86126	11/9/2017
Controller	10951	2/9/2018
Controller	72186	11/4/2016
Controller	11869	5/11/2016
Train Operator	83168	11/1/2017
Train Operator	13172	5/10/2018
Train Operator	11868	9/16/2016

Findings of Non-compliance:

None

Comments:

None

Recommendations:

None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**12**	**Element**	**Internal Safety Audits/Reviews**
Date of Audit	June 6, 2018 0900-1100	**Department(s)**	System Safety Department
Auditors/ Inspectors	Claudia Lam Jamie Lau	**Persons Contacted**	David Bagley, System Safety Manager Chris Walger, Transportation Controller Safety – Rail Division

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
3. SDTI Audit Schedule 2015-2018

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Internal Safety and Security Audits (ISSA)/Reviews

Interview the SDTI representatives involved in ISSAs, and review appropriate records to:

1. Determine if a three-year internal audit schedule was developed and submitted to CPUC.
2. Verify that all 21-SSPP elements were evaluated within a three-year period.
3. Verify CPUC was notified 30 days in advance of the scheduled audit via a letter and or an email and draft checklist(s) were submitted for review.
4. Verify each audit identifies the appropriate SDTI departments, personnel, the safety-related activities addressed, and the reference criteria.

5. Verify audits have been properly documented, included references for documents, activities reviewed, criteria for evaluation, and notes to support findings and recommendations.
6. Verify Annual Reports for 2015-2017 are accompanied by annual compliance letters from the Chief Executive Officer (CEO) stating SDTI's compliance status with its SSPP and identify Corrective Action Plans for non-compliant elements.
7. Verify Corrective Actions from the internal safety audit process were scheduled, tracked, and implemented.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the System Safety Manager and Transportation Safety Controller. Staff reviewed the Internal Safety Audit binder, dated 2015-2017, that included the documentations for the last three years internal safety audit. The documentations showed:

1. SDTI submitted a three-year internal safety audit schedule to the CPUC designated representative to SDTI identifying the SSPP elements that will be covering during Years 2015-2017.
2. SDTI evaluated and covered all 21-SSPP elements identified in the 3-year schedule.
3. CPUC was notified 30 days in advance of the scheduled audit via an email to CPUC designated representative dated on July 17, 2017; the audit occurred between September and November 2017. Draft checklists were sent to CPUC representative prior to the audit.
4. According to the 2017 audit checklists, each audit identifies the SDTI departments, personnel, the safety-related activities addressed, and the reference criteria.

5. According to the 2017 audit checklists, audits have been documented including references for documents, activities reviewed, criteria for evaluation, findings and recommendations.
6. Annual Reports for Years 2015-2017 are accompanied by annual compliance letters from the Chief Executive Officer (CEO) dated on Dec 13, 2017, stating SDTI's compliance status with its SSPP and identify Corrective Action Plans for non-compliant elements. There was no corrective action identified for Years 2015-2017.
7. There was no corrective action identified or required for Year 2015-2017.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**13-A**	**Element**	**Rules Compliance: Observation and Enforcement**
Date of Audit	June 5, 2018 0900-1300 June 6, 2018 0900 - 0930	**Department(s)**	Transportation Department LRV Maintenance
Auditors/ Inspectors	Richard Fernandez Debbie Dziadzio Michael Rose	**Persons Contacted**	Brian Riley, Superintendent of Transportation Edward Graham, Asst. Superintendent of Transportation Fred Kroner, Lead Transportation Supervisor Andy Goddard, Superintendent LRV Maintenance Mel Bickham, Asst. Superintendent LRV Maintenance

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 172
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI Rail Rule Book, Revised: September 2017

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Observation and Enforcement

Interview the appropriate SDTI representatives, perform field observation of SDTI staff and review appropriate records to:

1. Verify SDTI Transportation Department performs formal observations of Controllers and Train Operators as specified in the SSPP and/or supporting procedures by accompanying a Line Supervisor during compliance checks, assess how compliance checks are conducted, and ensure that final report matches field findings
2. Verify SDTI performs observation of Maintenance Employees as specified in the SSPP and/or supporting procedures. Interview operations and maintenance supervisory staff to determine their familiarity with rules and procedures and how they monitor employee compliance with rules and procedures.
3. Review documentation to verify Supervisors are citing operating and maintenance personnel for rule violations. Conduct a random sample inspection of transit operators to determine if they are carrying their rulebook, if they have the proper safety equipment in their cabs, and if their radios are functioning
4. Verify operations and maintenance employees are evaluated based on their performance during unannounced observations to assess their compliance with safety rules, procedures, and/or practices. Conduct random interviews of operators and mechanics to verify how often they receive training on rules and procedures and how the transit agency monitors their compliance with rules and procedures
5. Determine how SDTI performs efficiency testing of operating and maintenance personnel and verify CAPs are implemented when appropriate
6. Verify the SDTI Safety Department receives reports from Operations and Maintenance Departments regarding rules compliance assessment and testing. Are hazards identified from the rules compliance process, reported to Safety, and tracked through the Hazard Management Process?
7. Select a minimum of four or five Transportation Standard Operating Procedures and ride the SDTI system to verify rules

are followed (such as horn signaling, any speed restrictions, end of line vehicle inspections, etc.).

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Transportation and LRV Maintenance Management regarding rules compliance, observations, and enforcement. Based on the interviews, Staff noted that SDTI Operations and Maintenance Supervisors are well versed in SDTI Operating Rules, General Orders, and Federal Regulations.

Staff reviewed rules compliance observation documentation for non-compliance and any violations observed and found discipline to comply to SDTI SSPP, SOPs, General Orders, SDTI Operating Rules, and Federal Regulations.

Records reviewed were:
LRV Maintenance

- #4032 Misaligned switch
- #2005 Misaligned switch

Transportation

- Several employees

Both hard and electronic copies of efficiency tests and compliance observations are maintained. SDTI Training Department maintains the Transportation Department hard copies. Light Rail Vehicle (LRV) Maintenance Department Superintendent maintains the LRV

Department hard copies. All tests are scanned and uploaded into the network server for both departments.

All non-compliances with SOPs, rules and regulations identified during the observations are discussed during Monday morning, Tuesday morning and Friday meetings, which include all department heads and System Safety (See Checklist No. 13-E).

Staff accompanied SDTI Lead Transportation Supervisor (#53788) during the performance of efficiency tests on June 6, 2018:

1. Staff observed the Lead Transportation Supervisor conduct one Roadway Worker Protection (RWP) Efficiency Test and two LRV Operator Efficiency Tests. The RWP work crew was located at the Civic Center Station and was working under advisory, as noted on Operating Clearance dated Tuesday, June 5, 2018, All Trains-All Lines Restriction #4. The Lead Supervisor observed the crew from a discreet location for approximately 20 minutes prior to entering the job site to conduct efficiency test. The Lead Supervisor inspected the Engineer in Charge (EIC's) Roadway Worker Job Briefing Form, and all employee's RWP Certification Cards, Rule Book and Roadway Worker Protection Plan. The Lead Supervisor filled out a Flagperson/Work-Site Inspection Compliance Testing Form on all three Employees.

2. Staff observed the Lead Transportation Supervisor conduct Efficiency Test on two Train Operators (T/Os). Staff rode Blue Line #4051 from American Plaza to City College Station with Operator #11916 and an Orange Line #2001 A-end from City College Station to Arnele Station, lead LRV was #4061, LRV Operator #61374. Lead Transportation Supervisor filled out a Train Operator Efficiency Test Form on both T/Os.

Findings of Non-compliance:
None

Comments:
Staff reviewed the Roadway Worker Job Briefing form for EIC #14344, dated June 5, 2018, and noted it was not filled out entirely. Missing information included: Verified Limits, Watchman Location, RWPP 102.6 Games, Reading or use of PEDs, From and To Limits. When the Contractors completed their tasks, they informed the EIC, however, the EIC did not notate Time-Out on reverse side of Sign-In sheet. Although not identified as an overall concern of Staff, SDTI supervisors should review forms and advise employees when they are not fully completed.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**13-B**	**Element**	**Rules Compliance: Operations Safety Compliance**
Date of Audit	May 21, 2018 – June 6, 2018 0900-1700	**Department(s)**	Transportation Department Wayside Department
Auditors/ Inspectors	Richard Fernandez Michael Rose Debbie Dziadzio	**Persons Contacted**	Brian Riley, Superintendent of Transportation Edward Graham, Asst. Superintendent of Transportation Fred Byle, Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. CPUC General Order 164-D/E
2. CPUC General Order 172
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI Rail Rule Book, Revised: September 2017
5. SDTI Roadway Worker Protection (RWP) Manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Safety Compliance

Interview SDTI representatives responsible for Operations, and select at minimum of 10% Wayside staff, 10% Controllers, 10 % train operators, and 10% Line Supervisors, and perform ride-along or on-site inspections to verify their compliance to determine whether:

1. Maintenance Workers:
    a. Know and understand applicable wayside safety rules;

b. Comply with the Personal Electronic Devices (PED) Rules and Roadway Worker Protection (RWP) rules when performing any duties on or near railways;
c. Know and understand the rules and procedures for mainline operations.

2. Train Operators:
   a. Are in compliance with the applicable rules and procedures;
   b. Comply with PED Rules while inside operator cabins;
   c. Are properly trained and knowledgeable in handling accident/incidents and emergency response situations, and coordinating with Operations Control Center during an incident
3. Controllers:
   a. Are properly preparing and maintaining records, reports, and logs;
   b. Perform duties in accordance with standard operating procedures, rule books, and bulletins;
   c. Are trained and knowledgeable in dealing with accidents/incidents and emergency response situations and coordinating with SDTI personnel and other agencies during the same.

FINDINGS AND RECOMMENDATIONS

Activities:

For two weeks, Staff interviewed and observed the following SDTI staff:

Maintenance workers:

5/31/18 San Ysidro Station
Unit 442
Employee #11623, #14163
Working at Rail Court Street (crossing gates)

6/4/18 RWP
Grossmont Station

6/5/18 RWP
Civic Center Station
Park Blvd between E Street and Broadway

Staff observations of SDTI personnel for the three maintenance crew observations indicated that SDTI personnel were knowledgeable of the SDTI procedures for wayside safety, PED use rules and prohibitions, and RWP requirements and processes.

Train Operators:

#12606 Yard Crew	#12800
#12603	#10802
#00173	#11170 **
#07608	#10481
#10604	#13658
#11916	#61374
#86126	

Staff determined that all T/Os interviewed possessed their required Rule Book, Operating Board, working flashlight, qualification card, ID pass, working watch, itinerary for run working, daily Operating Clearance Form and were wearing their Hi-Vis vests. No T/O was observed utilizing PED.

All train rides operated by the T/Os were compliant to SDTI Operating Rules, i.e. horns before movement, horns at grade crossings, all crossing gates were down before LRV operated through the crossing, PA system functioning properly, Security (Fare Enforcers) highly visible, maintaining proper operating speed, and knowledgeable of operating

territory and operating rules. One operator briefly exceeded line speed slightly due to running at or very near the speed limit on approach to the station. Given the overall compliance during the review and during routine field reviews of SDTI operators, this was not judged to rise to a finding.

**Staff observed T/O of Greenline Train #077, LRV #4031 exceeded 20 mph into Rio Vista, Stadium, SDSU and Amaya Stations between 1314 and 1415 on 05/29/2018. Staff advised the Transportation Superintendent and System Safety Manager on 05/30/2018.

Controllers:
5/30/18 AM
Green Line
Orange Line
Blue Line

Staff reviewed Controller logs, Unusual Occurrence Reports (TOSA), Radio logs, and record of train movement logs and determined that the Reports and logs were being completed properly and in accordance with SDTI procedures.

Staff observed Controllers and noted that they used correct radio directives and procedures, and that they properly reviewed bulletins for speed restrictions, rectified delayed trains, and detailed delayed trains. Staff found that the OCC Manual, SOPs and Rule book were readily available. Based on the discussions and observations, Staff concluded the Controllers were very knowledgeable of their territory and of the SDTI operating system.

Findings of Non-compliance:

None

Comments:
Staff observed several empty operating cabs that were not secured i.e. open windows, open cab doors, unlocked cab doors. Industry standards dictate operating cab securement, including for vehicles parked in transit agency yards. Staff discussed this matter with SDTI Safety and noted that while it was not a widespread problem, SDTI should re-emphasize train securement requirements for its train operators.

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**13-C**	**Element**	**Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service**
Date of Audit	May 24, 2018 0900 - 1200	**Department(s)**	Transportation Department Wayside Department LRV Maintenance Department
Auditors/ Inspectors	Richard Fernandez Michael Rose Debbie Dziadzio	**Persons Contacted**	Fred Byle, Superintendent of Wayside Maintenance Brian Riley, Superintendent of Transportation Ed Graham, Asst. Superintendent of Transportation

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. General Order 143-B, Rule 12.04 Hours of Service-Safety Sensitive Employees
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service

Select at least 10% safety-sensitive employees at random from each of the following employee classifications:

- Controller
- Train Operator
- Track Inspector
- Signals Inspector

- Flagperson/Look-out/Watchperson
- Supervisors
- LRV Maintainer

Review the employees' timecards for a three-month period during the past 18 months to determine whether:

1. The employee was in compliance with safety-sensitive employee requirements and did not remain on duty for more than 12 consecutive hours, or for more than 12 hours in any 16-hour period.
2. Each initial on-duty status was preceded by eight consecutive hours of off-duty status.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff reviewed work and payroll records for the following SDTI personnel to ensure compliance to GO 143-B, Section 12.04 (Hours of Service for Safety Sensitive Employees):

15 SDTI Train Operators (6/1/17 – 8/31/17)

#094969	#070031
#049379	#000173
#010604	#010856
#011834	#012658
#012528	#012928
#013161	#010164
#00074	#013831
#014328	

4 SDTI Supervisors (12/1/16 – 2/28/17)

#053472	#052632

#12770 #35864

2 SDTI Track Maintainers (10/1/17 – 12/31/17)
#85934 #11886

3 SDTI Wayside Maintainers (3/29/17 – 7/4/17)
#12694 #29336
#14164

5 SDTI Watchperson/Lookout (1/1/18 – 3/31/18)
#012804 #013981
#014302 #014037
#014266 **

Findings of Non-compliance:
** #014266
Per payroll records, on February 23, 2018, this Lookout was paid 8 hours regular, 4 hours overtime, 33 minutes double while the timekeeping records show 12 hours and 33 minutes worked. Upon investigation, Staff reviewed logs from Operations Control Center (OCC) that revealed work crew advised OCC the Lookout would have to work over 12 hours due to concrete being poured. Working over 12 hours for Safety Sensitive employees is allowable in an emergency situation only. Staff does not agree this qualified as an emergency situation.

Comments:
Hours of Service Records for Safety Sensitive employees are maintained, readily available, and easy to decipher. Staff does not believe SDTI has a problem with HOS compliance. The lone finding hinged on the interpretation of "emergency situation" by SDTI field and OCC personnel. Staff did not agree that this was an unforeseen emergency situation and that SDTI should have sent another lookout to the site earlier. Emergency situations would be scenarios such as trains

involved in an accident, a disabled train, a medical emergency or an incident involving criminal or police activity preventing the train operator from staying under 12 hours of consecutive work.

Recommendations:
SDTI must ensure Safety Sensitive Employees are not on duty more than 12 consecutive hours, as required by General Order 143-B, section 12.04 Hours of Service Requirements, and clarify for field and OCC staff what constitutes an emergency.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**13-D**	**Element**	**Rules Compliance: Contractor Safety Program**
Date of Audit	May 24, 2018 13:00-16:00	**Department(s)**	Transportation Department System Safety Department SANDAG Engineering and Construction Department LRV Maintenance Department
Auditors/ Inspectors	Richard Fernandez Michael Rose Debbie Dziadzio	**Persons Contacted**	Michele Cederberg, Transportation Training Supervisor Monica Coria, Right of Way Engineer Ed Graham, Asst. Superintendent of Transportation Brian Riley, Superintendent of Transportation David Bagley, System Safety Manager

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Contractor Safety Program

Interview the SDTI representative responsible for the Contractor Safety Program and review documentation to determine whether:

1. SDTI's Contractor Safety Program establishes responsibilities and requirements for training, certification,

rules, regulations, and procedures applicable to all employees/contractors.

2. SDTI standard operating procedures establish the range of activities for monitoring Contractors and their employees and enforcing compliance with safety requirements through regular unscheduled and unannounced compliance checks and scheduled periodic audits and inspections of construction sites to monitor compliance with its safety requirements.
3. SDTI's monitoring and enforcement activities are properly recorded, distributed, and filed.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI personnel and confirmed that SDTI follows SSPP, Section 18.2 Contractor Safety Program (dated December 2014). Jacobs Engineering, LLC is responsible for all RWP contractor training. Staff reviewed the Jacobs Engineering RWP training materials and found it follows SDTI's PowerPoint presentation and RWP course curriculum. Jacobs Engineering gives the 4 hours class on Tuesdays at an offsite location. Upon successful completion of the RWP class, Jacobs issues an RWP decal for hardhats and an RWP ID card which states RWP class date and expiration date. Verbiage in the new contract between SDTI and Jacobs will advise that the contractor is responsible for maintaining the RWP certification/recertification records. The sign-in sheets for the classes are forwarded to SDTI Training.

An audit of the class is performed by SDTI personnel at least once per month to ensure compliance to SDTI RWP rules and GO175-A compliance. Also, Line Supervisors perform compliance checks at all work sites. Staff reviewed approximately 20 MTS Rail RWP,

Flagperson/Work-site Inspection Compliance Testing Forms to ensure SDTI is enforcing compliance with safety requirements through regular unscheduled and unannounced compliance checks. All observation reports are forwarded to SDTI Training Department, Transportation Superintendent and Assistant Transportation Superintendent.

Staff reviewed SDTI Memo dated October 6, 2010 – Line Supervisor Forms and Requirements, SDTI Roadway Worker Job Briefing form, Memo dated October 12, 2017 Quarterly Paperwork Goal Progress (regarding Flagperson work site inspection compliance testing), and Memo dated October 19, 2017 from Training Department to Superintendent of Transportation advising 1st quarter progress regarding efficiency test goals.

All records regarding efficiency tests and compliance observations are maintained by SDTI Training Department, both hard and soft copies.

Findings of Non-compliance:
None

Comments:
It is clear that SDTI is serious regarding compliance to CPUC GO 175-A and following the SDTI RWP plan.

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**13-E**	**Element**	**Rules Compliance: Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions**
Date of Audit	May 31, 2018 0900 - 1200 June 6, 2018 0900 - 1030	**Department(s)**	System Safety Department Transportation Department LRV Maintenance Department Wayside Department
Auditors/ Inspectors	Richard Fernandez Debbie Dziadzio Michael Rose	**Persons Contacted**	Brian Riley, Superintendent of Transportation Ed Graham, Asst. Superintendent of Transportation Michele Cederberg, Transportation Training Supervisor Jennifer O'Connell, Lead Assignment Supervisor Jorge Cordova, Central Control Supervisor Chris Walger, Safety-Rail Division Fred Byle, Superintendent Wayside Maintenance Charles Perry, Manager Track and Structures Jeff Love, Wayside Training Supervisor Andy Goddard, Superintendent of LRV Maintenance Isaiah Zeitske, LRV Maintenance Analyst

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B

3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance:
Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions

Interview SDTI representative responsible for operations rules and procedures, maintenance procedures, and review necessary documentation to determine whether:

1. The Transportation Standard Operating Procedures, Wayside Maintenance Procedures and all active Operating Bulletins are reviewed, revised systematically and distributed to the relevant personnel.
2. All Operating Bulletins were approved by the Operations Superintendent with concurrence of affected departments if applicable and issued in a timely manner.
3. An employee record of all Operating Bulletins issued, and received
4. Active Operating Bulletins are posted in specified locations, and inactive bulletins are removed in a timely manner.
5. Staff received all new operating rules and bulletins during the past 12 months, and issuance was tracked.
6. Conduct interviews with SDTI Safety Department representatives to discuss their role in ensuring that safety concerns are addressed in SDTI's rules compliance program.
7. Does the Safety Department representative receive reports from the SDTI's operations and maintenance departments regarding the performance of rules checks, assessments, and testing?

8. Are hazards identified from the rules compliance process and reported to SDTI Safety Department and managed through the hazard management process?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI representatives responsible for the review and systematic revisions and distribution of operating rules, standard operating procedures (SOPs), and maintenance procedures. Staff learned the following weekly meetings occur:

- **Monday** - SDTI Superintendent of Transportation meets with all department heads to discuss operational trends and analysis, efficiency testing and results, possible revisions to SOPs, operating rules, issuance of General Bulletins, Memos, etc.
- **Tuesday** - a high level, upper management meeting occurs which include SDTI's Chief Operations Officer (COO). The upper management meetings relays Monday meeting discussions to ensure all levels of SDTI are cognizant of all concerns of SDTI operations and the potential need to change, and revise operating rules, SOPs, the issuance of Notices, etc.
- **Friday** - SDTI COO, Central Control, Department Superintendents and Assistant Superintendent of Transportation verify updates if needed. SDTI Superintendent of Transportation approves all revisions and updates.

After revisions and updates to SOPs and operating rules occur, each department head receives a copy via email. At that time, the department heads are responsible for dissemination to their employees. The employees must acknowledge and sign that they personally received and discussed with their superiors the revised, new SOP, operating rule, notice, etc. The "signed-for" sheets are maintained in the Transportation

Training Department for Transportation personnel, and in the Training Department for Wayside and Maintenance.

Staff reviewed sign-in sheets for:

- SOP 103.02 dated 8/9/17 Train Operator sheet
- SOP 106.15 dated 6/29/17 Supervisor sheet
- SOP 105.13 dated 4/29/18 Supervisor sheet
- SOP 105.38 dated 4/29/18 Supervisor sheet

To improve rule knowledge and to emphasize certain rules or rule updates, SDTI takes the following proactive steps:

- SDTI issues a Rule of the Week that is posted in the Assignments Room;
- have increased efficiency testing relating to the recent rule revisions, and;
- Conducted a SOP book audit during the mandatory recertification (every two years) to ensure personnel possess the most current SOPs.

Revised SOPs, Bulletins, Notices, etc. are contained on master clipboards located throughout SDTI property (i.e. Assignments Room, COO's office, Superintendent's office, Central Control). The supervisors of each area holding a master clipboard are responsible to ensure the information contained on the clipboard is current and accurate. SDTI also updates the SDTI Intranet regarding any changes to operating rules, SOPs, notices, etc. This is monitored and maintained by SDTI Transportation Training Department.

Staff was advised that the CPUC designated representative received all updates to SOP, operating rules, notices, memos, etc. revisions.

Staff learned that there is no dedicated time and/or date to revise SOPs and operating rules. This occurs on an 'as need' basis.

SDTI personnel advised that SDTI System Safety is involved in all above listed meetings (Monday, Tuesday, and Friday), and receive an annual report generated by Transportation Department which reflect accidents, incidents, occurrences, and trends that have occurred the past year. SDTI's Quarterly Report is also sent to Safety Department where Safety utilizes data to mitigate, and develop safety plans to meet SDTI Safety goals, i.e. increased e-testing, observations, defensive driving, etc.

Staff visited the Wayside and Maintenance facilities and was advised that manuals and SOPs are revised on an 'as need' basis. However, the same process that ensures transportation personnel receive the most current and revised SOPs, Notices, Rules, Memos, etc. is utilized in Wayside, i.e. Supervisor received revision via email, Supervisor hands down revisions to workers and utilizes the sign-in sheet. The sheets are maintained by Wayside Training Department and are readily available. Wayside and Maintenance Departments also utilizes the monthly Toolbox safety meetings to ensure all employees are aware of any changes and revisions to SDTI operations. Wayside and Maintenance Departments are participated in SDTI's weekly Monday, Tuesday, and Friday meetings.

Staff interviewed the LRV Maintenance Superintendent and Analyst regarding review, revision and distribution of updated SOPs. The LRV Maintenance Superintendent will periodically review SOPs based on Manufacturer's Memo, procedure changes, new equipment, and employee recommendations. The new SOPs are scanned and uploaded into SDTI network server and is available to all of their employees to review and any time. Also, when a new or revised SOP is written, the Supervisors review the new SOP with their employees. A sign-for sheet is attached to the new SOP and the hard copy is maintained by the LRV Maintenance Superintendent. The hardcopies of the SOPs are filed with

the LRV Superintendent for 4 years, after which are archived as per SDTI requirements.

Staff reviewed the following SOPs:

E-2052 LRV Maintenance
Accumulator Pressure Checks, & Charging, SD100 LRV Series VI
Date: 6/14/17
Supersedes: 7/15/98

E-2054 LRV Maintenance
Filling, Inspection and Operations of Hand Pump for LRV Friction Brake System
Date: 6/21/17
Supersedes: 7/16/98

Findings of Non-compliance:
None

Comments:

1. Transportation: CPUC suggests a dedicated timeframe for review of all SOPs. Manuals, and Policies (i.e. every year, every 2 years, every 5 years, etc.).

2. Wayside and Maintenance should have a master clipboard in their Tool Room and Track Cage.

3. LRV Maintenance procedures regarding review, revision and distribution of SOPs and manuals, to ensure all employees are knowledgeable and possess the most current information available, are well organized, inclusive and thorough.

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**13-F**	**Element**	**Rules Compliance: Operations Control Center & SCADA**
Date of Audit	May 22, 2018 0900 - 1200	**Department(s)**	System Safety Department Transportation Department
Auditors/ Inspectors	Richard Fernandez Michael Rose Debbie Dziadzio	**Persons Contacted**	Brian Riley, Superintendent of Transportation Edward Graham, Asst. Superintendent of Transportation Jorge Cordova, Central Control Supervisor David Bagley, System Safety Manager

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Central Control & SCADA

Interview SDTI representatives responsible for operations rules and procedures and review necessary documentation to determine whether:

1. Whether SCADA records are maintained as required, and that all preventative and corrective maintenance practices comply with the applicable reference criteria.

2. Review SCADA reports/logs related to intrusion alarms, false presence, and others associated with SCADA monitoring.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI personnel and learned that ARINC (Aeronautical Radio, Incorporated), who was the contractor during 2015 Triennial Audit, continues to be the 3rd party contractor for SDTI SCADA hardware and software support that integrates all of SDTI's rail lines into SCADA.

SDTI's SCADA System is a double redundant system. The primary system with a hot/mirrored standby is located at SDTI's Operations Control Center (OCC). The secondary system with a hot/mirrored standby is located at SDTI's BOSS (Bus Operations). In the event of an OCC SCADA system hardware failure, the mirrored system at BOSS becomes the primary.
SCADA servers have been upgraded to a 64-bit processor system.

During monthly maintenance checks to update and test SDTI SCADA system, TWC (Track to Wayside Communication) and SCADA substations are updated and integrated. ARINC maintains the latest version control at their Marina Del Rey, CA office in the event of a catastrophic SDTI SCADA system failure.

Staff reviewed ARINC Server and VM Workstation Maintenance Log for the week of May 21, 2017.

Staff reviewed SDTI SOP 106.22, SDSU Tunnel and Underground Station: Emergency Systems and Alarms and learned that intrusion alarms are recorded on the Controller's Daily Log which Staff reviewed

to confirm. SDTI personnel relayed that when the Trespasser Intrusion System is activated, SDTI and SDSU Security are advised. Intrusion is confirmed (or not) via Station CCTV monitored at the Operations Control Center (OCC). The Controller will then take appropriate steps to ensure trains are notified and security personnel dispatched to locate and remove the trespasser for their own safety.

In the event of a False Presence, Controller will initiate an SAP® (System Applications Products) Work Order, which is relayed to Maintenance of Way (MOW) who will investigate the false alarm. Maintenance of Way will coordinate with other departments, i.e. IT, take action for corrective measures, and closes the SAP® Work Order. Staff reviewed 4/27/18 Green Line False Presence Report and verified the process implemented, steps taken for corrective action, and SAP® Work Order close out.

Findings of Non-compliance:
None

Comments:
Plans and policies that were being tested and implemented during the 2015 audit have been incorporated and integrated into current SDTI procedures.

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**14-A**	**Element**	**Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside**
Date of Audit	June 6, 2018 9:00-15:00	**Department(s)**	Facilities
Auditors/ Inspectors	Michael Warren Matt Ames	**Persons Contacted**	Rolando Montes, Facilities Manager Brenda Jackson, Facilities Admin. Assistant Ian Edwards, Facilities Assistant Manager Sean-Ryan McCray, EHS Specialist

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside

Interview SDTI representatives, perform field observations of SDTI staff inspecting the equipment and review appropriate records for past 3 years to determine whether:

1. Required inspections were performed per supporting references.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.

3. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans developed, and implemented in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI representatives in reference to SSPP Section 14, Facilities and Equipment Inspections and SDTI Facilities SOPs.

Staff performed field observations of SDTI Personnel inspecting buildings, non-revenue vehicles, fire and emergency equipment. Staff observed a facility building inspection of Building A and observed a non-revenue vehicle inspection and reviewed Vehicle 773 daily log for completeness.

Staff reviewed SAP, Daily Activity Report (DAR) dated January-May 2018, and Facilities Manager Tracking records for completeness, procedural compliance and correspondence. Staff followed these records with noted deficiencies and discovered inspection deficiencies open in SAP and Facilities Manager's tracking spreadsheet for multiple months, for example:

6/27/17 Building A Page 11, Emergency Lighting Item # 1, Supervisor's Office (downstairs) – Lights Out

4/26/18 Building A Page 11, Emergency Lighting Item # 1, Supervisor's Office (downstairs) – Lights Out, Completed 5/22/18.

Facilities Manager audits SAP, DAR and Work Orders for correspondence and timeliness.

1. Staff reviewed SAP records and found that SDTI is in compliance with performing required facilities inspections within the required frequencies. Non-Revenue Facilities Vehicles inspected daily utilizing the daily inspection log. SAP will notify if a particular frequency interval is not being met as required by SOP. Staff determined that SDTI is required by Regional Water Board to perform storm water monthly inspections. Two rain event samples per 6 months required if available.
   Ninyo and Moore (Contractor) was used for inspections prior to May 2108 and current contractor is Whitson CM. SDTI provided a Storm Water Pollution Prevention Plan, dated April 2018. SDTI Personnel escorts contractor during inspection and will notify Facilities by email with what needs correction and severity. Facilities will usually handle within hours.
   Monthly Storm Water Inspections reviewed:
   - 23, April 24, 2017.
   - January 30, 2017
   - February 25, 2016
   - September 26, 2016
   - May 2018
   - March 27, 2018
2. Staff determined that all facilities inspections are recorded on the Daily Activity Report (DAR) form that is subsequently submitted to the Facilities Supervisor (FS). The FS is notified immediately of high priority deficiencies found during inspection; other deficiencies are noted on the DAR. FS will enter DAR information into SAP software and schedule deficiency repairs as necessary and designate appropriate department to assign work order to. Hazards that have not been corrected will be entered into SAP and scheduled.

All departments have access to SAP. Other departments have requested that multiple line items be included in a single SAP Notification from Facilities. Priority level for repairs to line items will be determined by the department creating the Work Order. Departments have had some difficulty in responding to Notifications and Work Orders and closing out Notifications and Work Order documentation within a timely manner.

3. Staff determined that Hazards open in SAP are discussed with Chief Operating Officer twice weekly. Hazards identified during inspections are either addressed immediately or scheduled in SAP and tracked through completion. Hazards that need immediate correction are called in to FS for resolution.

Findings of Non-compliance:
None.

Comments:

1. SDTI Personnel assigned to SAP Notifications should close Notification when all work orders associated with the Notification line item(s) have been addressed. While closing the documentation out could be deemed a lower priority task, its completion is important for tracking, and SDTI should work to assure these are closed out upon or soon after implementation of the appropriate work orders.

2. SDTI should educate Facilities (and possibly other Departments) Personnel on thresholds (quantity, size, surface area) for hazardous material spills in order to determine if incident needs to be reported to EHS Specialist for possible regulatory reporting and appropriate corrective actions.

Recommendations:

None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**14-B**	**Element**	**Facilities and Equipment Inspections: Stations and Emergency Equipment**
Date of Audit	June 6, 2018 9:00-15:00	**Department(s)**	Facilities
Auditors/ Inspectors	Michael Warren Matt Ames	**Persons Contacted**	Rolando Montes, Facilities Manager Brenda Jackson, Facilities Admin. Assistant Ian Edwards, Facilities Assistant Mgr

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Stations and Emergency Equipment

Interview SDTI representatives, perform field observation of SDTI inspecting equipment and review appropriate records to determine whether:

1. Required inspections were performed in accordance with reference criteria.
2. Inspections were properly documented and noted discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff interviewed SDTI representatives in reference to SSPP Section 14, Facilities and Equipment Inspections and SDTI Facilities SOPs.
Staff performed field observations of SDTI Personnel inspecting the 12th and Imperial Station.

1. Staff reviewed SAP records and found that SDTI is in compliance with performing required facilities inspections within the required frequencies. Facilities Supervisor (FS) and Service Worker (SW) conduct daily/weekly inspections. SW completes a Daily Activity Report. FS uses daily activity report to fill out SAP record. Each FS is responsible for 14 stations with approximately 12 SWs per FS. Emergency equipment and fire equipment inspections completed during weekly inspections and as necessary.

2. Staff determined that all facilities inspections are recorded on the Daily Activity Report (DAR) form that is subsequently submitted to the Facilities Supervisor (FS). The FS is notified immediately of high priority deficiencies found during inspection; other deficiencies are noted on the DAR. FS will enter DAR information into SAP software and schedule deficiency repairs as necessary and designate appropriate department to assign work order to. Hazards that have not been corrected will be entered into SAP and scheduled. OCC can create hazard notifications in SAP.

3. Staff determined that Hazards open in SAP are discussed with Chief Operating Officer – Rail twice weekly. Hazards identified during inspections are either addressed immediately or scheduled in SAP and tracked through completion. Hazards that need immediate correction are called in to Facilities Service for resolution.

Findings of Non-compliance:
None.

Comments:

None.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**14-C**	**Element**	**Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures**
Date of Audit	June 7, 2018 11:00-13:00 June 8, 2018 (field) 7:00-12:00	**Department(s)**	Facilities
Auditors/ Inspectors	Matt Ames Joey Bigornia	**Persons Contacted**	Fred Byle, Superintendent of Wayside Maintenance Charles Perry, Manager of Track and Structures

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014.
4. SDTI SOP's

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures

Interview SDTI representatives, perform field observation of SDTI staff performing inspections and review appropriate records to determine whether:

1. Structures inspections were performed in accordance with reference criteria.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.

3. Potential hazards found during inspections were tracked until resolution.
4. The Safety Committee and Safety Department are aware of all safety hazards identified from Facilities and Equipment Inspection.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI representatives, performed field observations with SDTI Personnel and reviewed inspection records.

1. Staff determined inspections were conducted in accordance with the Bridge Management Program dated May 2018. The Bridge Management Program (BMP) is in compliance with 49 CFR § 237 per the FRA requirements due to SDTI's light rail operations on joint usage tracks with freight railroad. Bridges are inspected annually, and the tunnel is inspected twice weekly: once from a hyrail and once from an LRV inspection train. SDTI plans to include an annual tunnel inspection in the Bridge Inspection contract.
2. Inspections were documented and noted properly. Discrepancies noted in the Maintenance Bridge Inspection Reports recommendation section were not corrected and/or tracked until completion. Some discrepancies were repaired but were not tracked through completion.
   Staff reviewed 2015-2018 Inspection Reports and field observations were conducted for compliance with the BMP of the following bridges:
   Green Line: BR 9.25, BR 12.00 and BR 12.75
   Orange Line: BR 5.85 and BR 3.35
   Blue Line: BR 5.65 and BR 4.45 (saw compliant RWP Job Briefing)

3. Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations noted were not tracked until resolution.
4. The Safety Committee and Safety Department were not made aware of all Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations identified during inspections.

Findings of Non-compliance:

1) Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations were not:
   a. Corrected within the prescribed time frame (Priority)
   b. Corrected in a timely manner
   c. Tracked until resolution
   d. provided to the Safety Department

Comments:

For Bridge Inspection Reports - Comment section: SDTI should require comments noting to monitor something, incorporate a reference; for example, a baseline measurement.

Recommendations:

1. SDTI Wayside Department must correct Bridge Inspection defects found in a timely manner within the prescribed time frame and track them until the corrective action(s) are implemented.

2. SDTI Wayside Department must provide the inspection results and report Potential and Safety Hazards, Discrepancies, and Maintenance Recommendations identified during Tunnel, Bridge, and Aerial Structure inspections, to the Safety Department, which may have prevented this finding.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**14-D**	**Element**	**Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance**
Date of Audit	May 15, 22, 2018 09:00-17:00	**Department(s)**	Wayside Department
Auditors/ Inspectors	Sal Herrera Shane Roberson	**Persons Contacted**	Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside

REFERENCE CRITERIA

1. CPUC General Order 95
2. CPUC General Order 164-E
3. CPUC General Order 143-B
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. SDTI OCS Book of Standards dated May 2015

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance

Select at least four (2) of mainline or yard track sections at random from the Blue Line, Green Line, and Orange Line and perform visual inspections and to determine whether for each line section:

1. Overhead Catenary System wire height and assemblies are compliant with General Order 95 requirements.
2. The required monthly, semi-annual, and annual inspections were performed during the past 3 years.

3. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
4. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.
5. All right-of-way components are in compliance with the applicable reference criteria, or variances approved by CPUC.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff inspected OCS sections on Blue, Green, Orange & SDTI yard.

All wire heights and assemblies are set at new construction and only time any adjustment is made or required is during a catastrophic incident (Wire down) or reconstruction. Initially checked by installing contractor and verified by SDTI personnel.

OCS Inspections are performed yearly according to SDTI OCS Book of Standards and SSPP Section 15.1. However, Staff found inspections are not filled out completely.

The OCS inspection forms identify potential hazards. However, SDTI does not track these and there are no corrective action plans or implementation provided.

Findings:

1. Staff found OCS inspection forms incompletely filled out, missing repair dates, and repaired by signatures.

2. SDTI is failing to document and provide Repair/Work orders for defective conditions noted on OCS inspection forms.

Comments:
None.

Recommendations:
SDTI must review OCS inspections forms to ensure they are filled out completely, tracked, and provide corrective action plans for any and all hazards according to OCS Book of Standards and SSPP Section 15.1

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**14-E**	**Element**	**Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing**
Date of Audit	May 16, 2018 09:00-17:00	**Department(s)**	Wayside Department
Auditors/ Inspectors	Shane Roberson Sal Herrera John Madriaga	**Persons Contacted**	Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside Signals

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. CPUC General Order 143-B
3. CPUC General Order 75-D
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. Code of Federal Regulations CFR 49, Part 234, Grade Crossing Signal System Safety
6. Manual Uniform Traffic Control Devices (MUTCD), Signage Requirements

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Signal Communication, Grade Crossing

Interview SDTI's representative responsible for Wayside Maintenance, and randomly select Preventative Maintenance (PM) records from the past 3 years and to verify compliance for:

1. SDTI's Track & Turnout and Crossing Maintenance:
    a. Perform detailed inspections of the mainline switches and at-least six (6) grade crossings (two grade crossings per operating line) components to determine whether or not they are in compliance with the applicable reference criteria.
    b. All required PM activities were properly documented and corrected in a timely manner.
    c. Defects and non-compliances noted on inspection report forms were tracked from recommendation, Corrective Action Plan, and implementation.
2. Vital Relays Preventative Maintenance:
    a. Review the records of preventive maintenance, scheduled and unscheduled maintenance activities for vital relays to determine if inspections were performed at the required frequencies as specified in the reference criteria.
    b. All required PM activities were properly documented and corrected in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff conducted a records and field inspection of the following:

A. Switches:
   Blue Line: 39B, 41A, 41B, 39A
   Orange Line (Baltimore Junction): 19A, 19B
   Green Line: 21A, 21B
B. Crossings:
   Blueline: Sampson, East Park, West Park
   Greenline: Noelle, Severin
   Orangeline: Severin (joint corridor as Greenline), Arnele

SWITCH INSPECTIONS:
No defects were noted at switches during field inspection or records inspection.

CROSSING INSPECTIONS:
Sampson, University, East and West Park, Arnele:
No defects noted on record inspection.

Noelle:
No exception noted during field inspection or records inspection.

Staff conducted a records inspection of relay inspections (4-year inspection). No defects noted.

Findings of Non-compliance:

CROSSING INSPECTIONS:
Sampson:

- Staff noted discrepancy in frequency noted on plans and what is installed in case (49 CFR § 234.201).
- (SDTI corrected on site) Staff noted defective gate striping (MUTCD 8C.04).

University:

- Staff noted ENS sign missing on gate A & B (GO 75D 5).
- Flashers not directed towards traffic (49 CFR § 234.217 & GO 75D 6.2).
- "J" box and liquid tight not properly secured at gate "A" (49 CFR § 234.211).
- Flasher not properly secured (49 CFR § 234.211).
- Lights out on cantilever (49 CFR § 234.217) (SDTI corrected on site).

- Defective gate striping on 3 gates (MUTCD 8C.04).
- Cross buck and 2 track signs out of compliance (49 CFR § 234.245).
- Labels in cantilever "J" box missing (49 CFR § 234.239).

Severin:

- Staff noted missing 2-track sign (MUTCD 8B.03)
- Unsecure "J" box (49 CFR § 234.211).
- Gate arm height out of spec. (MUTCD 8C-1).
- Flasher not properly secured (49 CFR § 234.211).
- Flashers not directed towards traffic (49 CFR § 234.217 & GO 75D 6.2)

Arnele:

- Staff found as-build plans do not match what is installed in signal house.
- "B" gate has 4 sets of flashers installed and current plans show 2 sets of flashers. Plans also show multiple colors. Plans are as-build or construction copies. (49 CFR § 234.201).
- Cross bucks and 2 track signs are out of compliance. (49 CFR § 234.245).
- Gate "A" "J" box is unsealed. (MTS re-sealed box on site) GO 128 41.6.

Insulation Resistance Testing:

Staff conducted a record inspection for insulation resistance PM's (10-year inspection). Staff noted SDTI currently has 36 locations which are 6 months overdue from required inspection interval. SDTI acknowledged the finding and implemented a plan to bring all overdue tests up to date within 6 weeks.

**Staff notes defects found during the Field inspection were not recorded on SDTI's Inspection Records.

Comments:
None.

Recommendations:

1. SDTI must maintain their grade crossing equipment as required by GO 75 3, GO 75D 5, GO 75D 6.2, GO 128 41.6, 49 CFR §§ 234.201, 234.211, CFR 234.217, 234.245, 234.239, and 234.273, MUTCD 8B.03 and MUTCD 8C-1.

2. SDTI Wayside must ensure grade crossing & signal equipment inspection activities, defects, and corrective actions are scheduled on work orders.

3. SDTI Wayside Management must conduct random inspections of maintainer corrective actions to ensure all grade crossings are being maintained according to regulations.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**14-F**	**Element**	**Equipment Maintenance Program: Measurement and Testing Instrumentation**
Date of Audit	June 25, 2018 09:00-15:00 (LRV) ---------- June 25, 2018 09:00 – 1500 (Wayside)	**Department(s)**	Wayside Department LRV Maintenance Department
Auditors/ Inspectors	**Adam Freeman** **James Matus**	**Persons Contacted**	Andy Goddard, Superintendent of Light Rail Vehicle Fred Byle, Superintendent of Wayside Brian Trewien, WaysideSupervisor

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Measurement and Testing Instrumentation

Interview responsible SDTI representatives from each department, review appropriate records, and inspect no fewer than eight measuring or testing instruments to determine whether:

1. The selected gauges, micrometers, calipers, torque wrenches, multi-meters, etc. are properly inventoried, stored, distributed for use, calibrated at prescribed intervals, and marked, tagged, or otherwise identified to show current calibration status.

2. The next scheduled testing/calibration due date is shown on each measuring or testing instrument.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI representatives from both Light Rail Vehicle (LRV) Maintenance & Wayside Maintenance to review each of the Measurement and Testing Instrumentation tool inventory list. Staff randomly selected from these lists at least eight measuring & testing instruments from both LRV maintenance and wayside to determine if each tool is being calibrated at the prescribed intervals (annually) according to SDTI's standard operating procedures.

Light Rail Vehicle Maintenance Tools Reviewed:

Tool	Asset Number	Calibration Date
Megometer	#117900024	cal. Date 11-30-17 Due 11-30-18
Megometer	#117900025	cal. Date 11-30-17 Due 11-30-18
Digital Multimeter	#117900124	cal. Date 11-30-17 Due 11-30-18
Torque Wrench	#117900141	cal. Date 11-30-17 Due 11-30-18
Digital Multimeter	#117900146	cal. Date 11-30-17 Due 11-30-18
Clamp on ammeter	#117900166	cal. Date 11-30-17 Due 11-30-18
Digital Multimeter	#117900186	cal. Date 11-30-17 Due 11-30-18
Digital Caliper	#117900196	cal. Date 11-30-17 Due 11-30-18

Additionally, Staff ensured that each tool is being properly marked with the last calibration date and the next due date. Tools are available for use to SDTI personnel and all defective tools are properly tagged and removed from use. All tools inspected from both LRV maintenance and wayside did have proper certificates of calibration. Cal Coast Metrology is the company providing calibration. All certificates of calibrations are properly logged with all details required within for proper calibration.

Tools inspected included, torque wrenches, digital calipers, digital multi-meters, clamp meters, megometers, and selected gages. Staff also inquired about the LRV maintenance laser wheel gauge which is calibrated annually. All tools are systematically scheduled to be in house to meet calibration testing dates.

Wayside Maintenance Tools Reviewed:

Tool	Asset Number	Calibration
Torque Wrench	#AX4173	cal. Date 6-22-17 Due 6-22-18
Gauge	# CT6609	cal. Date 6-16-17 Due 6-16-18
Torque Wrench	#BH6741	cal. Date 6-16-17 Due 6-16-18
Scale	#CT0741	cal. Date 6-13-17 Due 6-13-18
Wattmeter	#T8712	cal. Date 6-14-17 Due 6-14-18
Oscilloscope	#L9420	cal. Date 6-13-17 Due 6-13-18
Power Supply	#L9420	cal. Date 6-13-17 Due 6-13-18
Fluke DMM	#BL8365	cal. Date 6-20-17 Due 6-20-18

Findings of Non-compliance:
None.

Comments:
Staff did find old calibration date decals still attached to some tools. The local calibration company responsible for calibrating tools must remove all old calibration stickers once updated with the most current calibration sticker; all new stickers must be affixed using a suitable sticker that is not easily removed so that it remains in place on each tool.

LRV Maintenance should consider updating their tool inventory master list with specific locations of each of the tools listed in an effort to more easily locate each tool. Wayside does have a master list of tools with locations. Staff did observe a few tools without locations assigned. All tools need to be accounted for and should have all locations assigned to each tool. Update master tool list as it changes.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**15-A**	**Element**	**Maintenance Audits and Inspections: Rail Vehicles (Revenue & Non-revenue)**
Date of Audit	May 24-25, 2018 0900-1700	**Department(s)**	LRV Maintenance Department
Auditors/ Inspectors	James Matus Adam Freeman John Madriaga	**Persons Contacted**	Andy Goddard, Superintendent of Light Rail Vehicle Maintenance Mel Beckham, Assistant Superintendent of Light Rail Fred Byle, Superintendent of Wayside Charles Perry, Manager of Track Wayside Structures

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Light Rail Vehicles

1. Perform field observations of SDTI staff inspecting revenue and non-revenue rail vehicles to determine if the following components are properly and adequately maintained:
    a. Axle-mounted gearbox
    b. Truck, axle, and wheel assemblies
    c. Brake systems

d. Door assemblies
e. Lighting
f. Passenger doors
g. Passenger component and safety appliances
h. Public address and intercom systems

2. Randomly select 10% of the fleet (SD100, SD7, SD8, PCC) and review the maintenance records for each vehicle model for the past 3 years to verify:
    a. The preventive maintenance (PM) performed was at the required maintenance interval;
    b. The records were properly documented with the necessary review and approval
    c. Noted defects were corrected in a timely manner
3. Verify if SDTI has performed their major change-out/overhaul of safety critical systems and or structure integrity of the LRV(s) as per maintenance procedures.
4. Randomly select a minimum of three Hi-Rail maintenance vehicles to review the completed Preventative Maintenance (PM) and unscheduled maintenance records associated with each car selected over the last three years to determine whether or not:
    a. The vehicles were inspected during preventative maintenance at the required frequencies as specified in the referenced criteria.
    b. The records were properly documented with the necessary review and approval.
    c. Noted defects were corrected in a timely manner.
    d. Any necessary adjustments or modifications to the rail system are tracked and monitored for performance and safety.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff and SDTI personnel performed detailed inspections on Light Rail Vehicles, Hi-Rail Vehicles, and PCC cars. Staff randomly selected 10 percent of the LRV fleet and reviewed all maintenance records for the last three years for the following:

PCC Car:
#529

SD100:
2002, 2008, 2025, 2049

SD7:
3001, 3010

SD8:
4027, 4056, 4060

Detailed inspections included all aspects of proper maintenance including doors, door assemblies, braking systems, wheels, truck assemblies, gearboxes, axles, all safety appliances, lighting, flooring, windows of operating section, operators seats, intercom systems, wheel chair lifts, vehicle structural frame integrity, pantographs, base frames, surge arrestors, HVAC, car panels, primary suspensions, secondary suspensions, articulation dampers, and articulation sections.
All cars listed above were also reviewed for proper preventative maintenance frequency interval and documentation according to SDTI'S SSPP listed:

1) Daily inspections, 7.5k, 22k, 6-month oil inspection, one-year inspection, and HVAC inspections.
2) Daily inspections, 7.5k, 15k, 30k, and 60k.
3) PCC daily inspections, 30-day, 60 day, and yearly inspection.

Staff reviewed current and ongoing overhaul programs of safety critical systems. Documentation of major change out data was reviewed for couplers, gearboxes, braking systems, and traction motors. Tracking systems for overhaul programs was in place and provided by SDTI personnel.

Staff reviewed documentation of the past three years for the preventative maintenance of the following Hi-rail vehicles. Staff also inspected these vehicles for general safety. The documentation inspection was for general safety, 90-day bit program, high rail inspections, daily inspections, and unscheduled general vehicle maintenance.

437

- strobe light inoperable

440

- vehicle certification decal missing

441

- strobe light inoperable
- first aid decal missing

448

- first aid decal missing, broken work light

465

- shunts worn out
- first aid decal missing

<u>Findings of Non-compliance:</u>

1. Hi-rail vehicles (437,441) - strobe light inoperable
2. Hi-rail vehicle (441, 448, 465) - first aid decal missing

3. Hi-rail Vehicle 465 - worn shunts
4. Hi-rail 440 vehicle certification decal was missing

Comments:
Staff reviewed all daily inspections to the vehicles listed above. All daily inspection sheets reviewed had no defects listed. Staff and SDTI personnel agreed that having all daily inspections completed throughout the inspection years showing no defects or repaired defects proves a deficiency in this practice.

A Pre and Post inspection should be initiated so that the daily inspection practice correctly observes defects and shows systematically that the defects are corrected and properly tracked.

Hi-rail vehicles need first aid decals.

Recommendations:

1. SDTI must ensure that hi-rail vehicles found with defective items are noted, corrected, and continue following requirements of 49 CFR Part 214 Railroad Workplace Safety, Subpart D.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**15-B**	**Element**	**Maintenance Audits and Inspections: Traction Power System**
Date of Audit	May 15, 16, 21,2018	**Department(s)**	Wayside Department
Auditors/ Inspectors	Sal Herrera Shane Roberson	**Persons Contacted**	Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. CPUC General Order 95
2. CPUC General Order 164-E
3. CPUC General Order 143-B
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. SDTI Overhead Catenary Book of Standards – CAT 101, dated May 2015.
6. SDTI Quarterly Substation Inspection, Quarterly Substation Inspection Procedure SUB-STA. 2.O, dated 4/30/11.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Traction Power System
Interview SDTI representatives and select at least one section of the overhead catenary power system and one substation from each of the following areas:

1. Blue Line
2. Orange Line
3. Green Line

For each section, review the appropriate documentation and perform a visual inspection to determine whether:

1. The rail traction power system is inspected and maintained in compliance with SDTI's s standards.
2. Substations and are inspected and maintained in compliance with SDTI's standards.

Review SDTI's stray current program to determine whether:

1. SDTI is active in mitigating the effects of stray current on its own and surrounding structures.
2. SDTI has procedures in place to identify and correct hazards caused by stray current.
3. Any hazards identified have been addressed and tracked through Corrective Action Plans to completion.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff inspected OCS and Traction Power Substation on Blue, Orange and Green Lines. Subs are as follows:

Blue Line – Seaward
Orange – Market
Green – Baltimore

Staff found the inspections records for 2015-2018 are inconsistent and missing the quarterly mark inspection frequency. The Seaward Substation had a 9 months interval between quarterly inspections.

No stray current incidents have ever been noted or documented; SDTIs Assistant Superintendent of Wayside states no Stray current has ever been known to happen at SDTI property.

Findings of Non-compliance:
Substation Quarterly inspections are not being performed within the respective time frame according to SOP SUB-STA 2.0.

Comments:
None.

Recommendations:
SDTI must review and ensure that all Substation Inspections are being performed and completed within their respective time frames according to SOP SUB-STA.2.0.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**15-C**	**Element**	**Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance**
Date of Audit	May 16,21, 2018	**Department(s)**	Wayside Department
Auditors/ Inspectors	Shane Roberson Sal Herrera John Madriaga	**Persons Contacted**	Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Signal Systems Maintenance
Perform field observations of SDTI staff inspecting the signal system components to determine whether or not they are in compliance with applicable reference criteria. Select at least one-track section at random from each of the following areas to inspect, including at least one at-grade section, one tunnel section and one aerial section (review records for past 3 years and conduct field inspections):

1. Blue Line
2. Orange Line
3. Green Line

FINDINGS AND RECOMMENDATIONS

Activities:

Staff conducted field inspections and reviewed records dated May 2016 - present for the following interlockings:

Orangeline:
E20

Blueline:
S40

Greenline:
E22.

Findings of Non-compliance:

S40:

- 41B "J" box not sealed. GO 128 41.6 (Signal Crew sealed on site)
- MCM bonds missing SOP SIG-2014. Record review did not show any defect as to such.

E22:

- Signal mast E22RA background needs painting GO 75 D 9.3.
- Signal Mast "J" box not sealed GO 128 41.6 (Signal crews sealed on site).
- Ground wire is missing GO 143 10.09.
- Vegetation encroaching on overhead wires GO 143 9.12 & GO 95 35.
- Vegetation around and growing into case GO 143 9.12 & GO 118 A.
- No ID on case GO 143 B 10.05.

Comments:
None.

Recommendations:

1. SDTI must maintain vegetation clearances, maintain coloring of back grounds and masts on signal heads, replace missing ground wire,

and ID signal case as required by General Orders 75D, Section 9.3; 95, Rule 35; 143B, Section Nos. 9.12,10.05, 10.09; 128 Rule 41.6.

2. SDTI must replace MCM bonds as needed per SOP SIG-2014.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**15-D**	**Element**	**Maintenance Audits and Inspections: Tracks and Turnouts**
Date of Audit	May 14, 15, 22, 23, 2018 9:00-17:00	**Department(s)**	Wayside Department
Auditors/ Inspectors	Sal Herrera John Madriaga Joey Bigornia (5/14, 5/15)	**Persons Contacted**	Fred Byle, Superintendent of Wayside Charles Perry, Manager of Wayside Structures

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. Code of Federal Regulations CFR 49, Part 213, Track Safety Standards

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Tracks and Turnouts

Perform field observations of SDTI staff inspecting mainline tracks to determine whether or not they are in compliance with applicable reference criteria. Select at least one-track section from each of the following areas to inspect, including at least one at-grade section, tunnel section, and one aerial section:

1. Blue Line
2. Orange Line
3. Green Line

Review SDTI's preventative maintenance records, schedule and unscheduled maintenance activities for two separate 6-month periods in the past 3 years:

1. Track Inspection:
    a. Review the track inspection reports from field inspection to determine whether:
        i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
        ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.
        iii. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans, developed, and implemented in a timely manner.
    b. Randomly select at least two separate recorded geometry car inspection reports to determine whether:
        i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
        ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.
        iii. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans, developed, and implemented in a timely manner.
    c. Review SDTI internal rail defect reports to determine whether:
        i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.

ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.

2. Turnout Inspection:
   a. Review at least two separate turnout inspection reports from field inspection to determine whether:
      i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
      ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.

FINDINGS AND RECOMMENDATIONS

Activities:

A. Field Review

Staff performed detailed inspections of mainline tracks and turnouts of a track section in the following areas of the Blue Line, Orange Line and Green Line, including at grade section, tunnel section, and aerial section.

B. Maintenance Records Review

Staff interviewed the Superintendent of Wayside and the Manager of Track and Structures and performed the following:

Track Inspections

Staff reviewed Track Inspection Reports dated 2017-2018 as required by 49 CFR § 213.241 for the areas inspected from the Field Review and found all reports are properly documented, tracks are inspected at required frequency, and defects found were repaired in a timely manner.

Staff reviewed Geometry Car Inspection Reports dated 2017-2018 which records the super-elevation, profile of track structures and unbalance.

The inspection report notes no findings for the Blue Line and one unbalance finding on the Orange Line which was corrected same day. SDTI inspects Blue Line one a year and the Orange Line twice yearly.

Staff reviewed Rail Detector Inspection Reports dated 2017-2018 which records internal rail defects. The inspection report found one defect on the Blue Line which was corrected same day. There were no internal defects recorded on the Green Line and Orange Line. SDTI inspects the Blue line quarterly and Green Line and Orange Lines once every year.

Yard Tracks

Staff performed a field inspection of the A-yard and reviewed monthly inspection reports dated 2017-2018. SDTI recorded measurements found on the inspection reports as required.

Staff performed a field inspection of the C-yard and reviewed monthly inspection reports dated 2017-2018. SDTI recorded measurements found on the inspection reports as required.

Findings of Non-compliance:

Greenline/Orangeline:

A. Baltimore Junction Interlocking**:**

E-20 Interlocking - staff noticed several pandrol clips making contact (49 CFR § 213.33) with a huck bolt on an insulated joint.

Switch 19-B - loose bolts on heel block (49 CFR § 213.135.06)

E-345 spur track - loose brace plates (49 CFR § 213.133.8), worn switch point (49 CFR § 213.135 (H)), switch target (red) faded (49 CFR § 213.133 (A)).

Orange Line:
Switch E 21A - walkway needs ballast (G.O 118A), broken frog plates (49 CFR § 213.123)

Green Line:
San Diego State University (SDSU) Tunnel and Aerial Section - track crossing (diamond) switches and aerial track in compliance.

SDSU West Portal - vegetation on right of way between Milepost 11.0 to 13.0.

Blue Line:
Switch N31-B - chipped switch point (49 CFR § 213.135)

Comments:
None.

Recommendations:

1. SDTI must comply with G.O. 118-A walkway standards and G.O 143-B, Sections 9.01; 9.12; 14.05.
2. SDTI must comply with 49 CFR §§ 213.33, 212.123, 213.06, 213.133, 213.133(A), 213.133.8, 213.135.06 requirements.

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2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**16-A**	**Element**	**Training and Certification Programs: Train Operators, Controllers, and Line Supervisors**
Date of Audit	May 23, 2018 0900 - 1200	**Department(s)**	Transportation Department
Auditors/ Inspectors	Richard Fernandez Michael Rose Debbie Dziadzio	**Persons Contacted**	Michele Cederberg, Transportation Training Supervisor Fabeann Soberg, Transportation Training Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Train Operators, Controllers, and Supervisors

1. Select between two (2) and five (5) employees at random in each of the following classifications:
   - Train Operators
   - Controllers
   - Supervisors
2. Review training, certification, and recertification records of the selected employees related to Roadway Worker Protection, Personal Equipment Device, and other specific job required training to determine whether:

3. All employees successfully completed initial training programs, and any discrepancies were addressed and resolved.
4. All employees have been recertified at the required frequency and are currently certified to perform their duties.
5. Verify that a process for maintaining and accessing employee training records is in place.
6. Verify categories of safety-related work requiring training and certification have been identified.
7. Verify employee and contractor job classifications requiring initial and refresher training and certification have been identified.
8. Verify SDTI has a process is in place to assess compliance with its training and certification requirements.
9. Verify corrective actions taken to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.
10. Verify that contractor training requirements are specified in contract documents.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff reviewed training records for the following SDTI personnel classifications:

A. Train Operators

#18643
#10298
#13008
#13661

All T/Os are currently certified, and their recertification dates were compliant to GO143-B, Section 13.03 requirements, every

two years. Roadway Worker Protection is covered during this training session. All T/Os were current regarding SOP updates and GO 172 training.

B. Controllers

#99032

#18666

#90

All Controllers are currently certified, and their recertification dates were in compliance to GO143-B 13.03 requirements. Roadway Worker Protection training is current, in accordance to SDTI SSPP dated 12/14 Section 18.1.2, and SOP updates. Some Controllers have maintained T/O qualifications. Of that category, all re-certifications are current. In the Controller recertification training, GO172 is outlined and covered.

C. Supervisors

#69902

#10605

All Supervisors are current in their recertification, RWP, SOP updates, and GO172 training requirements. All Supervisors take Transportation Line/Yard Recertification.

Staff reviewed the SDTI Recertification Spreadsheet. This tool is used to advise Training Department when T/Os, Controllers, and Supervisors are due various training and/or recertification to ensure compliance with regulatory requirements.

SDTI Training Department maintains both hard and soft copies of training records.

SDTI Supervisors perform formal and informal efficiency tests at least 2 per week on the T/Os. The test results are tracked and

analyzed for trends to help with the improvement of training. On a daily basis, Supervisors submit their e-testing forms to Training, who enter information into a database. A copy is sent to Transportation Superintendent, Transportation Assistant Superintendent and System Safety.

Findings of Non-compliance:
None

Comments:
Staff noticed that on the Cell Phone and Personal Electronic Device "PED" Policy memorandum, a form that personnel must sign, does not require a date. Staff suggests that a DATE line be added to the form. This will protect the integrity of the SDTI personnel training file to ensure records are in their proper place.

On the Train Operator Recertification outline, GO172 requirements, PED training, was not included in the bullet points of subjects covered. Staff suggests adding a bullet point for PED Training and removing non-essential subject matter.

Training records were well maintained. Due to the high quality of records maintenance, and training tracking systems, the training records were readily available and easy to discern. Thank you, it made our review easy!!!

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**16-B**	**Element**	**Training and Certification Programs: Maintenance Employees**
Date of Audit	June 24, 2018 09:00-12:00	**Department(s)**	**Light Rail Vehicle Maintenance Department**
Auditors/ Inspectors	James Matus Adam Freeman	**Persons Contacted**	Andy Goddard, Superintendent of Light Rail Vehicle Maintenance Mel Beckham, Assistant Superintendent of Light Rail Vehicle Maintenance Edwin Salvador. Light Rail Vehicle Training Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Maintenance Employees

Select at least three (3) employees from the Light Rail Vehicle Maintainers classifications.

1. Review the training and certification records for the last three years to determine whether or not:
   a. The employee has received the required training to perform his/her duties
   b. The employee qualifications are on file.

c. The employee has been re-certified at the required frequency

2. Verify that SDTI has a process is in place to assess compliance with its training and certification requirements.
3. Verify corrective actions to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff conducted a detailed review of training records for the Light Rail Maintainers Classifications. The review included a random selection of SDTI employees and training records were reviewed through SDTI's documentation files. Staff inspected specific documentation showing that the required initial training has occurred, re-certification was implemented at the correct interval, and that the training was in compliance with the maintainer's duties. Forklift, yard certification, and blood-borne pathogens are tracked through excel data and file folders with each employee listed along with their training. Other safety critical training criteria for SDTI employees are tracked with this data. The SDTI training supervisor presented Staff with their excel data and training sheets in file folders to satisfy the tracking needs.

Employees are systematically scheduled for initial training and on-going re-certification. Staff participated in an actual contractor training course to observe the effectiveness of SDTI's training program.

Compliance training is tracked for each employee who is absent or on vacation by documentation of missed training sheets. Before each employee returns to work from any absence, the missed training sheets are reviewed, and the employee receives the required training prior to engaging in any work-related activities.

Staff reviewed documentation provided by SDTI personnel relative to rule and procedure violations. Staff verified that correct policies per SDTI SSPP are in place to address SDTI employees and contractors' rule and procedure violations. Staff reviewed current and past violations with contractors and employees. SDTI provided satisfactory documentation per each employee who had a violation representing the exact rule or procedure violation, the date the employee or contractor was in violation, and the date the employee or contractor was trained on that specific rule and or procedure. Corrective actions were documented appropriately.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**16-C**	**Element**	**Training and Certification Programs: Maintenance Employees and Contractors**
Date of Audit	May 23, 2018 1300 - 1600	**Department(s)**	Wayside Maintenance Department
Auditors/ Inspectors	Richard Fernandez Michael Rose Debbie Dziadzio	**Persons Contacted**	Fred Byle, Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Maintenance Employees

1. Select at least three (3) employees in each of the following classifications:
    a. Signal Maintainers
    b. Overhead Catenary/Substation
    c. Track Maintainers
2. Review the training and certification records for the last three years to determine whether or not:
    a. The employee has received the required training to perform his/her duties
    b. The employee qualifications are on-file

c. The employee has been re-certified at the required frequency

3. Verify that SDTI has a process is in place to assess compliance with its training and certification requirements.
4. Verify corrective actions to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:

All training requirements are in accordance to General Order Nos. 143-B, 172, and 175-A.

Staff reviewed training records from the following SDTI personnel classifications:

A. Track Maintainers

#10866
#62132
#13858

All personnel were current in Recertification (every 2 years), CWR (annual), RWP (annual), Main Line Hy-Rail Certification (every 2 years), Cell Phone use, Operating Rules.

B. Signal Maintainers/Overhead Catenary/Substation

#13177
#77347
#11621

All personnel were current in Recertification (every 2 years), RWP (annual), Main Line Hy-Rail Recertification, Maintenance of Way, Cell Phone use, Hy-Rail/Low-Rail/Work Crew Instruction.

Training requirements for GO172 are covered during Track Recertification and RWP training.

Staff was advised Maintenance of Wayside (MOW) Superintendent maintains the training records hard copy and the Training Department maintains the soft copy.

Staff reviewed State of California Apprenticeship Agreement and SDTI Apprentice Daily Record which contains on-the-job training hours worked for various areas in the track and switch component maintenance. The apprenticeship program is approximately 4 years in length. Also reviewed were college course hours attended. The apprentice must pass all program requirements identified in SDTI SSPP 16.2.

Staff determined that SDTI MOW performs efficiency tests and compliance observations. Staff reviewed MTS Track Supervisor – Efficiency Test Inspection and Compliance checklist, MTD Wayside Substation Compliance E-test checklist, and RWP Compliance Testing checklist.

All efficiency tests and compliance checks are stored and maintained in the MOW Training location. System Safety Department does not receive copies of e-test to enable System Safety to be aware of MOW compliance data to identify safety trends which may need to be addressed

Non-compliance discipline for operating rules and general orders are assessed on a case by case incident (i.e. willful vs. lack of knowledge) by Superintendent of Wayside Maintenance.

<u>Findings of Non-compliance:</u>

Copies of MOW efficiency test and compliance observation results are not forwarded to System Safety to enable System Safety to review and be aware of MOW safety trends.

Comments:
The MOW Apprenticeship Daily Record database is very well put together, containing pertinent information in an orderly, concise manner. The records contain college classes, on-the-job training and hours, which are required for the apprenticeship program.

MOW hardcopy training records were very organized, up to date, and complete.

Recommendation:
SDTI shall institute a program or policy to ensure System Safety receives copies of efficiency test and compliance observations related to Wayside maintenance and LRV maintenance rules compliance. SDTI should consider updating Section 13 of the SSPP to include the other rules compliance activities it conducts.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**17**	**Element**	**Configuration Management and Control**
Date of Audit	June 5, 2018 13:00-15:00	**Department(s)**	SANDAG MTS Safety and Security Department
Auditors/ Inspectors	Ainsley Kung Jamie Lau Joey Bigornia	**Persons Contacted**	Thang Nguyen, MTS Chip Finch, SANDAG Dale Neuzil, SANDAG Lorenzo Garrido, SANDAG Michael Diana, MTS David Bagley, Safety and Security Department John Haggerty, SANDAG

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Configuration Management and Control

1. Randomly select three SANDAG / SDTI system modifications or design changes during the last 3 years to ensure configuration management documentation was properly updated to include at minimum:
    a. Engineering Design Peer Review;
    b. Design and Analysis Review by the System Safety Department;
    c. Design and Analysis Review by CPUC if required

d. Safety and Security Review Committee (SSRC) Approval
e. Change was reviewed and approved by SDTI's Chief Operations Officer
f. All necessary parties or employees within or outside the agency were properly notified about the change

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed MTS and SANDAG representatives for the following projects:

- Mid-Coast Corridor Transit Project
- SD9 Light Rail Vehicle Procurement Project
- OCS Insulator and Catch Cable Replacement Project

1. Staff reviewed the SANDAG Configuration Management Plan (CMP), Rev 4, December 2017. The Configuration Management Plan is implemented with the design objectives stated in accordance with Section 4.0 of the plan. Formal detailed design reviews are used to ensure completeness, quality of design and conformance to the system baseline. During the development of the design, reviews may be conducted at Alternative Analysis, 35%, 65%, 95% and 100% stages of design completion. These reviews include SANDAG, MTS and consultant staff and external agencies, if applicable.

2. CMP Section 7.0 process for deviations from baseline documents requires the person identifying the non-compliance to complete the "Request to Deviate from Baseline Documents" form, and a "Design Exception Form" with MTS. Staff reviewed the sample "Request to Deviate from Baseline Documents" form as included

in the CMP appendix. The "Request to Deviate from Baseline Documents" form requires the approval/signatures of MTS Safety Manager, MTS Chief Operations Officer (COO)-Rail, MTS Engineering Manager, in addition to the approval/signatures of SANDAG Project Manager, SANDAG Project Principal Engineer, SANDAG Corridor Director, and SANDAG Director of Rail.

3. OCS Insulator and Catch Cable Replacement Project replaces the current insulators and catch cables on the existing Orange Line. SANDAG designer provided typical As-Built drawings and addressed design changes during the OCS insulator and catch cable replacements projects. MTS Safety Manager is informed of any issues or changes. Engineering review occurred; construction started October 2017 and is approximately 7-miles in length, from 12th Imperial Station to El Cajon Station. This is an MTS funded project. SANDAG reviewed the project first prior to sending it out to MTS for construction.

4. See Activities in Checklist #7 – System Modification.

Findings of Non-compliance:
None.

Comments:
None.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**18**	**Element**	**Local, State, and Federal Requirements: Employee Safety Program**
Date of Audit	June 5, 2018 12:00-16:30	**Department(s)**	System Safety Department
Auditors/ Inspectors	Daniel Kwok Michael Warren	**Persons Contacted**	Christopher Walger, Transportation Controller - Safety

REFERENCE CRITERIA

1. CPUC General Order 164-E
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Local, State, and Federal Requirements: Employee Safety Program

Interview SDTI personnel and review appropriate records for last 3 years to determine whether or not:

1. SDTI holds Monthly System Safety Committee Meetings with Safety, Transportation, Wayside, LRV Maintenance, and Security.
2. The Monthly System Safety Committee Meetings appropriately responds to employees' complaints regarding safety problems.
3. An appropriate procedure and reporting form for workplace safety hazards is implemented and distributed to all employees.

4. Employees are aware of the safety training and certification programs and properly documented.
5. Employee safety corrective actions have been satisfactorily completed, tracked, and documented to closure.
6. Verify construction projects have specific procedures in place to ensure worker protection and public safety on the job site.
7. Verify procedure implementation is the responsibility of the contractor organization performing the work and SDTI.
8. Verify SDTI's operating and maintenance safety rules and procedures are included in construction contracts to bind contractors and employees to fulfilling their roles and responsibilities safely.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed MTS personnel responsible for the Local, State, and Federal: Employee Safety Program and determined the following:

1. See 2018 SDTI Checklist #9 Safety Data Collection and Analysis for review of Monthly System Safety Committee Meetings. SDTI also notes that meeting minutes are posted on company intranet.
2. Staff reviewed a complaint of flea infestation which was discussed at the October 2017 Monthly System Safety Committee Meeting. Staff verified the item was followed up on and tracked until closure on April 2018. SDTI states at every Monthly System Safety Committee meeting, one (1) hourly employee and one (1) manager from each department must be in attendance to the meetings. It was noted the original complainant of the flea infestation was in the committee for discussion and resolution. SDTI states there is usually a set hourly employee and a set

manager for each department attending the meetings, any updates provided in meeting minutes are posted on intranet and department bulletin boards. Follow-up for complaints are managed by department representatives to the monthly safety meetings.

3. SDTI states, and staff verified, procedures for reporting defects/dangerous conditions in the workplace are in SDTI Rulebook 3.40 and Roadway Worker Protection (RWP) Rule 107.13. To report hazards and near misses, employees can fill Hazard/Near-Miss Forms for RWP related items or Hazard Report/Assessment Forms for all other items, both forms are found on intranet. Employees may also fill out a handwritten "Special Report" form in a narrative format. Forms are submitted to their supervisor, and if the item warrants discussion which is determined by the supervisor, the forms are submitted to safety. Safety may ask complainant to complete the Hazard/Near Miss Form or Hazard Report/Assessment Form to assist Safety in gathering the necessary information. Staff was shown the "Hazard/Near Miss" spreadsheet, used for tracking hazard items reported to Safety.
4. SDTI states Safety training is mandatory for employees, and everyone who may be working on MTS property is given the Basic Safety Orientation. Employees are also trained in CPR and defensive driving. Completed training, safety or otherwise, is documented in Memorandums sent to the Training Department for record and tracking.
5. See Question #2 above. Staff also reviewed the Hazard Tracking spreadsheet for open and closed items. No discrepancies found.
6. Construction projects are handled by SANDAG. Please see 2018 SDTI Checklist #8 Safety Certification for additional details. All employee-in-charge (EIC) are MTS employees, and all contractors must take and pass Roadway Worker Protection (RWP) training and Safety Orientation Training.

7. Staff verified Safety Department has Standard Operating Procedures (SOPs): SAF 16 and 23, establishing contractor safety and health requirements. SDTI states SAF 16-03 is attached to every bid to verify compliance with SDTI safety rules in contracts.
8. SDTI states contracts have language for contractor providing worker and public protection. Contractors are also taught, and must sign acknowledgement of, during RWP training, the Employee-in-Charge (EIC) has full authority over the worksite. This is reiterated prior to contractors entering the right-of-way (ROW) and worksite.

Findings of Non-compliance:
None

Comments:
None

Recommendations:
None

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**19**	**Element**	**Hazardous Materials Program**
Date of Audit	June 5, 2018 11:00-12:00	**Department(s)**	System Safety Department
Auditors/ Inspectors	Daniel Kwok	**Persons Contacted**	Sean-Ryan McCray, Environmental Health & Safety Specialist Rolando Montes, Facilities Manager Gary Brown, Supervisor Warehouse Operations Edwin Salvador, LRV Training Supervisor Michele, Cederberg, Transportation Training Supervisor Jeffrey Love, Maintenance of Way Training Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI's Hazard Communications Program and the Bloodborne Pathogen Training Program.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazardous Materials Program

1. Interview SDTI Safety Department representatives to discuss SDTI's hazardous materials program and the role of the SDTI Safety Department in enforcing this program and determine the following:

a. The procurement process for insecticides, herbicides, chemicals, and solvents.
b. If a MSDS for each hazardous material is on file with the System Safety Department.
c. All approved MSDS are on-file and available for all employee access and verify process for employee access to the MSDS.

2. Select at least six SDTI employees responsible for handling hazardous materials and review their training records to verify they are qualified for reporting requirements, product release or spill, and spill incident response and clean-up.
3. Verify hazardous materials discharge/spill reports for incidents reported in the past 3 years have been prepared and filed properly.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff interviewed SDTI personnel and have determined the following:
    a. Staff, through discussion and review of SDTI's Hazard Communication Program found there is a procurement process for insecticides, herbicides, chemicals, and solvents. 2017 and 2018 Hazard Communication Program was provided to staff for review and verification on 6/14/2018. Staff noted there were some instances in the 2018 Hazard Communication Program where roles were assigned to the Safety Department, but those roles are currently being managed by the Environmental Health & Safety Specialist.
    b. SDS sheets for chemical products are stored on the intranet, which can be accessed via kiosks or any computer at all SDTI facilities and yards. The Hazard

Communication Program also has the intranet URL as Attachment 3. Staff randomly selected two common products used at SDTI (Round-Up PRO and Krylon Flat-White paint) and verified the product has SDS sheets.

c. See item 1. (b) above.

2. SDTI indicated the Light Rail Vehicle (LRV) training department performs the training and tracking of retraining dates. The Environmental Health & Safety Specialist "trains the trainer" for the Hazard Communications Program and Bloodborne Pathogen Training Program.
   See 2018 SDTI Triennial Checklist #16-B Training and Certification: Maintenance Employees for review of SDTI staff #s: 33266, 11279, 12670, 12817, and 14376.
   Staff performed additional review of SDTI staff #13100. No discrepancies were found.
3. SDTI states there have been no reportable hazardous material discharge/spills in the last 3 years.

Findings of Non-compliance:

None.

Comments:

Staff noted there were some instances in the 2018 Hazard Communication Program where roles were assigned to the Safety Department, but those roles are currently being managed by the Environmental Health & Safety Specialist. SDTI should revise the Hazard Communication Program reference of "Safety Department" to "Environmental Health & Safety", where applicable.

Recommendations:

None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**20**	**Element**	**Drug and Alcohol Program**
Date of Audit	June 8, 2018 9:00 – 11:00	**Department(s)**	Human Resources
Auditors/ Inspectors	Michael Warren Rupa Shitole	**Persons Contacted**	Brendan Shannon – Manager of Human Resources David Bagley – System Safety Manager Christopher Walger, Safety

REFERENCE CRITERIA

1. Code of Federal Regulations, Title 49 Part 655 – Prevention of Alcohol Misuse and Prohibited Use in Transit Operations
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. MTS Drug and Alcohol Policy, 4-13-2017

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Drug and Alcohol Program

Interview MTS representatives and review appropriate records prepared in the past 3 years to:

1. Verify SDTI has a policy for managing the use of over-the-counter drugs.
2. Select at least two safety-sensitive employees who tested positive for drugs or alcohol in the past 3 years and determine whether:

a. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP);
b. The employee was administered a return-to-duty test with verified negative results;
c. Follow-up testing was performed as directed by the SAP according to required follow-up testing frequencies in the reference documents after the employee returned to duty.
d. Employees who retested positive are disciplined.

3. Determine if SDTI has ever undergone a federal or state audit of its drug and alcohol program?
   a. What were the recommendations if any?
   b. Have corrective actions to recommendations been addressed?
4. Confirm that this information was accurately reported to FTA through the RTA's annual submission to the Drug and Alcohol Management Information System (DAMIS).

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed MTS representative(s) and reviewed the following documents to determine the following:

1. MTS has a bulletin titled *New Procedure for Reporting Prescription Drugs* dated December 9, 2011, as the policy for use of over-the-counter drugs. MTS uses the Prescription Drug Notification Form for all safety-sensitive employees to report their prescribed medications. It is filled out by employee's physician and reviewed by MTS's own medical professional. The MTS employees must notify their immediate supervisor or Human Resources about any changes to their prescription if they fall under safety sensitive positions. Training is provided ongoing and monitoring is occurring as per MTS policies and procedures.

a. Samples of Prescription Drug Notification Forms were reviewed as follows:
    i. Employee ID 12699 dated 6/1/2018;
    ii. Employee ID 12604 dated 10/27/17;
    iii. Employee ID 68897 dated 5/29/18;
    iv. Employee ID 85934 dated 3/9/18;
    v. Employee ID 181 dated 1/31/18;

2. Staff reviewed the following employees who tested positive. MTS-Rail had only one employee who tested positive, so Staff reviewed one MTS-Bus employee as well.
    a. Employee ID 14402(MTS-Rail)
        i. Employee tested 0.215 for alcohol consumption on 5/18/2018.
        ii. Employee was released from employment on 5/23/2018.
    b. Employee ID 13409(MTS-Bus Employee)
        i. Employee tested positive for THC during a random test on 9/20/2015.
        ii. Employee was released from employment on 9/29/2015.
3. Staff reviewed the FTA's 2017 audit report of MTS's drug and alcohol program titled, *FINAL AUDIT REPORT: FTA Drug and Alcohol Compliance Auditing Program* dated 2/3/2017.
    a. FTA had the following findings/recommendations for MTS
        i. 5 findings in records management
        ii. 3 findings in policy manual
    b. FTA letter dated August 4, 2017, states that MTS has addressed its findings and the MTS Drug and Alcohol Program is FTA compliant.
4. Staff reviewed MTS's 2017 DAMIS submission that was reported on March 12, 2018 and confirmed all information was properly reported.

5. Reasonable suspicion testing is conducted (Condition of Employee Report category) – This was conducted on the rail employee ID 14402 noted above.
6. MTS accident reports dated March 15, 2016, October 17, 2018, and January 29, 2018 were reviewed. No D& A test was conducted since no injuries were involved and the criteria did not meet the testing requirements. The operators were discounted from this testing.
7. MTS accident report dated May 15, 2018 (Train vs. Ped) was reviewed. The D&A test was conducted on the operator involved and the results are confidential and needing to know basis.

Findings of Non-compliance:
None.

Comments:
None.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**21**	**Element**	**Procurement Process**
Date of Audit	June 7, 2018 13:00-14:00	**Department(s)**	Procurement and Stores Departments
Auditors/ Inspectors	Matt Ames Joey Bigornia	**Persons Contacted**	Patrick Ma, Director Sam Elmer, Manager of Procurement Theodore Metz, Manage of Inventory Ops David Bagley, System Safety Manager

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. MTS Procurement Policy Manual
5. SANDAG Procurement Policies

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Procurement Process

Interview SDTI representatives and review appropriate documentation for the past 3 years to:

1. Verify MTS personnel are following applicable Procurement Policy and Procedures and ensure safety issues and concerns are addressed in the procurement process.

2. Determine adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the SDTI System.
    a. Are procurements of new equipment and material first reviewed by the engineering, operations, and/or maintenance staff to verify the new equipment or materials won't present a hazard to the existing system?
    b. Do all procurement processes for hazardous materials address all appropriate rules and regulations?
    c. Have unexpected delays or process complications delayed the procurement of goods or services available for usage or resulted in vendor provided services being acquired and implemented in a timely manner?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI representatives of the Procurement and Stores Department and reviewed documentation. SDTI implemented the SAP application for the procurement process as well as an automated web application in order to request New Stock Items.

1. Staff verified that MTS Personnel follow the applicable procurement policies. MTS Procurement SOP addresses the SANDAG requirements and SSPP Section 21. SAP is used to track the procurement process and all requests for new stock items are completed with 2 months.

   The Procurement Department requires the Safety Department to sign-off within the applicable application in order to assess potential incurred hazards for new stock tem request. The Hazardous Material Program is incorporated into the procurement process.

2. Staff determined that adequate procedures are in place in order to preclude new stock items from being introduced into the system. The new stock items for parts requests are completed in a similar manner.

    a. Departments review all requests prior to submittal and the Safety Department is included in the review and submittal process.
    b. Hazardous Materials requests are reviewed by each Department, including Safety and the Environmental Health Departments.
    c. New processes recently implemented have reduced unexpected delays. SDTI Personnel expect with the implementation of new software the past delays will be significantly reduced or eliminated.

Findings of Non-compliance:
None.

Comments:
None.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**22**	**Element**	**CPUC GO 172 – Personal Electronic Device Prohibitions/In-cab Cameras**
Date of Audit	May 30, 2018 0900 - 1200	**Department(s)**	Transportation
Auditors/ Inspectors	Richard Fernandez Debbie Dziadzio	**Persons Contacted**	Brian Riley, Superintendent of Transportation Ed Graham, Asst. Superintendent of Transportation Jorge Cordova, Central Control Supervisor Michele Cederberg, Transportation Training Supervisor Sharon Osorno, Central Control Information Representative David Bagley, System Safety Manager

REFERENCE CRITERIA

1. CPUC General Order 172
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 172 Personal Electronic Device (PED) Prohibitions/In-cab Cameras Compliance

Interview SDTI System Safety Department representatives and review appropriate documentation to determine the following:

1. Determine if SDTI has developed and implemented a PED

zero-tolerance policy and program usage, as required by General Order 172, Section 5.

2. Is SDTI's zero tolerance policy being enforced?

3. What is the failure rate of in-cab cameras and how many cameras failed in the last three years? Verify SDTI's recording retention complies with General Order 172.

4. Verify SDTI has conducted random evaluations for PED usage as
   required by General Order 172, Sections 4.3.e, 4.5, and 6.2.
5. Does SDTI's PED procedures comply with General Order 172?
6. Verify if train operator(s) comply with PED rules (Field Activity See checklist no. 13-B).

FINDINGS AND RECOMMENDATIONS

Activities:

Staff determined that SDTI has a PED zero-tolerance policy and program as stated in SDTI SSPP, Section 18.3, SDTI Operating Rule 1.4.9, and SDTI SOP 101.27 as required by GO 172. Staff reviewed SDTI SOP 101.27, Use of Personal Electronic Devices while on-duty (dated 1/4/12) which outlines prohibited use of PED while operating trains or other on-track vehicles, dispatching, flagging or otherwise controlling train movement, and performing any task while fouling an in-service track.

MTS ensures compliance to SDTI SOP's rules, policies, procedures and requirements occur via random observations, as directed by General Order 172, Section 6.2. This task is performed by the Control Center (CC) Information Rep who monitors, at a minimum, 20% of LRV in-cab video, per quarter. CC Information Rep also randomly monitors Yard Maintenance moves achieved by the CC Rep jointly working with the Light Rail Vehicle Maintenance Supervisor. OCC Supervisors are

responsible to ensure compliance in Control Center as well as Line Supervisors being responsible for RWP work site inspections to ensure compliance.

Staff reviewed SDTI Video Request Log P.E.D. General Order 172 April 2018 which contained 58 observations, which identified 5 random yard maintenance moves. Total random in-cab video monitoring for first quarter of 2018 (Jan, Feb, Mar) was 125 observations.

Staff was advised that since the CC Information Rep has been performing random in-cab video observations, there have been 2 observations that were non-compliant to GO172 and SDTI policies and operating rules.

Staff reviewed SDTI's in-cab camera inspection procedure and determined LRV Maintenance performs daily checks each night on every vehicle to verify
cameras are operational via SDTI Health Status Check. This is a visual inspection which will display a green light if camera is on or red light if camera is off. A secondary inspection check also occurs by an application process called DVSS Fleet manager. When the CC Information Rep observes an in-cab camera that is not functioning as designed, i.e. lens out of adjustment, LRV Maintenance is notified.

Staff learned:

1. The current fleet cameras are Mobileview PENTA-D video recorder (Windows-based)
2. The SD-9 model scheduled for arrival on SDTI property in Fall 2018 will have an upgraded camera called Mobileview 7001 video recorder (Mobileview proprietary software)
3. Both allow hybrid camera configuration (analog and IP)

The upgraded system has the advantage of mitigating video corruption in the event of power loss to the vehicle or incorrect removal of the recorder drive. The system also allows for quicker video downloads (per user request) and is broadband capable.

All random observations are archived on the SDTI Server.

Findings of Non-compliance:
None

Comments:
SDTI appears to have a robust GO172 compliance program.

Recommendations:
None.

2018 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

Checklist No.	**23**	**Element**	**CPUC GO 175 – Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems**
Date of Audit	May 21, 2018 13:00-15:00	**Department(s)**	Wayside Department
Auditors/ Inspectors	Shane Roberson Sal Herrera John Madriaga	**Persons Contacted**	Fred Byle, Superintendent of Wayside Charles Perry, Manager of Track Structures

REFERENCE CRITERIA

1. CPUC General Order 175.
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 175 Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems

Interview SDTI System Safety Department representatives and review appropriate documentation to determine the following:

1) Determine if MTS is following their procedure and adhering to General Order 175-A.
2) Verify RWP training records and compliance testing (Sections 9.3 and 9.4) has been performed and:

a. Verify no employees whose duties are those of a rail worker are required to perform work without training, at maximum intervals of 24 months.
b. Training/re-training sessions sign-in sheets with different job classifications and training certificates for the past 3-years are on-file

3) Verify MTS keeps a record of near miss program documents .6)), unsafe acts and right to challenge history and training as well as 24-month retraining.

4) Verify MTS RWP complies with yard and end-of-line storage track requirements.

5) Witness a job safety briefing if possible and work site for verification. (Field Activity See checklist no. 13-B).

6) Verify if roadway workers have a roadway worker rule book (Field Activity See checklist no. 13-B).

7) What is the status of SDTI's early warning alarm technology extension request from October 2017 as required by General Order 175-A. Section 6.3 d.i.(d)?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff performed the following:

1. Staff randomly selected personnel files from the crafts of Wayside, Controller/Supervisors, and Flaggers to determine if all testing is up to date and review test results. After reviewing RWP records dated 2018-present, staff found records are current. Random testing and tests meet GO 175A and SDTI procedures. No defects noted
2. Staff inquired about near miss program and SDTI provided staff with documents of such. Near misses are currently posted on MTS employee website for easy and anonymous entry and System Safety Department tracking the entries with an excel spreadsheet.
3. Staff observed SDTI wayside conduct job briefings and implement RWP at multiple location during Checklist Nos. 14-D, 14-E, 15-B, 15-C. Staff also randomly conducted inspections of RWP after facilities crews had set up a work zone. Staff noted Engineer in Charge (EIC) conducted a proper job briefing and watchmen during these Wayside Inspections did not sway from their post. Staff verified all Roadway Workers are supplied with RWP handbooks. No defects noted for Wayside Department RWP.
4. Near misses are currently posted on MTS employee website for easy and anonymous entry and System Safety Department tracking the entries with an excel spreadsheet. No defect noted for SDTI near miss program.
5. Staff inquired about SDTI's RWP early warning system. SDTI currently has 3 companies working on early warning systems. SDTI stated they should be implemented by November 7, 2019.

Findings of Non-compliance:

1. During random RWP inspection at two locations (Gaslamp, C Street), Staff noted the Facilities Department watchman were being distracted from his/ her duties.

Comments:
None.

Recommendation:
Staff recommends SDTI conduct a refresher course for Facilities Department flaggers and conduct random/unannounced inspection during the employee duties course to ensure compliance to SDTI's Roadway Worker Protection rules and GO175-A requirements.