

2009
SAFETY REVIEW OF
SAN DIEGO TROLLEY, INC. (SDTI)

RAIL TRANSIT SAFETY SECTION
RAIL TRANSIT AND CROSSINGS BRANCH
CONSUMER PROTECTION AND SAFETY DIVISION
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102

Final Report
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Consumer Protection and Safety Division

2009 ON-SITE SAFETY REVIEW OF SAN DIEGO TROLLEY, INC. (SDTI)

ACKNOWLEDGEMENT

The California Public Utilities Commission's Rail Transit Safety Section staff, with the assistance of the Commission's Railroad Operations Safety Branch and Utilities Safety and Reliability Branch 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 (Commission) Consumer Protection and Safety Division (CPSD), Rail Transit Safety Section staff (staff) conducted an on-site safety review of the San Diego Trolley, Inc. (SDTI) system safety program in June 2009. Staff performed the review with assistance from CPSD's Railroad Operations Safety Branch and the Utilities Safety & Reliability Branch inspectors.

Staff performed inspections of tracks & switches, grade crossings, light rail vehicles, and overhead lines from June 15 to June 19, 2009. Staff performed records reviews of SDTI safety programs from June 22 to June 26, 2009. An entrance meeting held on June 22, 2009, including executive level management and representatives from CPUC, SDTI, and San Diego Association of Governments (SANDAG) preceded the records reviews. Staff provided preliminary review findings and recommendations to SDTI and SANDAG management and representatives at the exit meeting on July 17, 2009.

The review results indicate SDTI has a comprehensive system safety program and has effectively implemented its System Safety Program Plan (SSPP). However, staff noted exceptions during the review which are described in the Findings and Recommendations checklist section. Staff found 18 recommendations for corrective action from the 32 checklists.

The Report Introduction is presented in Section 2 and Section 3, Background, contains a description of SDTI rail system. Section 4 describes the review procedure, and Section 5 provides the review findings and recommendations. The 2009 SDTI Safety Review Abbreviations List can be found in Appendix A, Checklist Index in Appendix B, Recommendations List in Appendix C, and Review Checklists in Appendix D.

2. INTRODUCTION

The Commission's General Order (GO) 164-D, *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration's (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 purpose of the triennial review is to verify compliance and evaluate the effectiveness of each rail transit agency's System Safety Program Plan (SSPP) and to assess the level of compliance with GO 164-D as well as other Commission and regulatory safety requirements. This is the fourth triennial safety review of SDTI. The last review occurred in April 2006.

On May 22, 2009, Staff mailed a letter to SDTI's Chief Operating Officer advising that the Commission's safety review had been scheduled for late June 2009. The letter included 32 checklists that served as the basis for the review. Four of the 32 checklists outlined inspections of track, switches, signals, overhead catenary system, and light rail vehicles. The remaining 28 checklists focused on the verification and the effective implementation of the SDTI SSPP. SANDAG is the independent agency responsible for the design, construction, safety certification, and implementation of SDTI capital projects, and four checklists included review of SANDAG policies and procedures.

The 2009 SDTI triennial safety review spanned two weeks of on-site physical inspections and records review. Staff performed physical inspections of track, switches, signals, grade crossing equipment, vehicles, and overhead lines during the week of June 15, 2009. The overhead line inspections were conducted by the Utilities Safety & Reliability Branch and the grade crossing equipment inspections were conducted by the Railroad Operations and Safety Branch. Staff conducted records review of SSPP elements, SDTI standard operating procedures (SOP), and other SDTI rules during the week of June 22, 2009. At the conclusion of each review activity, staff provided SDTI and SANDAG representatives with a summary of the preliminary findings and discussed any recommendations for corrective action.

3. BACKGROUND

The Metropolitan Transit Development Board (MTDB) was created in 1975 by passage of California Senate Bill 101 and was empowered to design, engineer, and build fixed guideway facilities within San Diego County, California. San Diego Trolley, Inc. (SDTI) was created by the MTDB 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 were 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.

SDTI Rail System Description

The SDTI LRT system operates over 53.5 miles on three routes, mostly double-tracked, with 53 stations. Weekday ridership averaged 82,589 in 2009 (Fiscal year), with a total of 36.9 million riders carried in 2009 (Fiscal year). 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 mode of operation of overlap that the light and conventional rail vehicles remain spatially and temporally¹ separated.

SDTI Lines

SDTI operates three lines described as:

¹ Temporal separation exists when no simultaneous operation of rail transit and freight trains on the same tracks occurs

- Blue Line - Revenue service began on July 26, 1981. The Blue Line currently extends 19.1 miles from the Old Town Transit Center to the San Ysidro Station at the U.S-Mexico international border. Trains operate on city streets for 1.4 miles (India and C Streets to 13th and Commercial Streets) of the total 19.1 miles with the remaining 14.1 miles from 13th and Commercial Streets to San Ysidro International Border operating in semi-exclusive right of way². The Blue Line operates through four jurisdictions: the cities of San Diego, National City, Chula Vista, and an unincorporated area of San Diego County.
- Green Line - Revenue service began on July 10, 2005. The Green Line begins at the Old Town Transit Center Station and extends 19.3 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.
- Orange Line – Revenue service on the first phase, from Imperial Transfer to the Euclid Station, began on March 23, 1986. The line was extended in 1989 to El Cajon, and to Santee in 1995. The Orange Line is 20.6 miles from the Imperial Terminal Station, via the Bayside Corridor and Downtown San Diego to the Gillespie Field Station in El Cajon. The Orange Line route serves the Bayside Corridor with the Gaslamp Quarter, Convention Center, and Seaport Village Stations adjacent to Harbor Drive. The line continues 1.4 miles on the city streets shared with the Blue Line (India and C Streets to Park Blvd. and Commercial Streets), then continues independently east for two additional miles on Commercial Street to 32nd Street. After 32nd Street Station, the line continues east for an additional 15.6 miles on semi-exclusive right-of-way to the Gillespie Field Station in El Cajon. The Orange Line operates through four jurisdictions including the City of San Diego, Lemon Grove, La Mesa and El Cajon.

² 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.

4. REVIEW PROCEDURE

Staff conducted the review in accordance with the Rail Transit Safety Section Procedure RTSS-4, *Procedure for Performing Triennial On-Site Safety and Security Reviews of Rail Transit Agency*. Staff developed thirty-two (32) checklists to cover various aspects of system safety responsibilities, based on Commission and FTA requirements, SDTI SSPP, safety related SDTI documents, and the staff's knowledge of the transit system. The 32 checklists are included in Appendix C.

Each checklist identifies safety-related elements and characteristics reviewed or inspected by staff. Each of the checklists also references Commission, SDTI, and other documents that establish the safety program requirements. The completed checklists include review findings, and recommendations if the review findings indicate non-compliance. The completed checklists may include comments and suggestions to improve SDTI's system safety program or recognize best practices. 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
- Inspections and measurements of equipment and infrastructure

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

5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors concluded SDTI rail system has a comprehensive SSPP and is effectively implementing the plan.

Review findings identify areas where changes should be made to further improve SDTI's system safety program. The review results are derived from staff activities observed, documents reviewed, issues discussed with management, and inspections. Overall, the review result confirms SDTI is in compliance with its SSPP. The review identified 18 recommendations from the 32 checklists:

1. Light Rail Vehicle Inspection

No findings of non-compliance; no recommendations.

2. Track and Switch Inspection

Staff found the following non-compliant items:

- Guard check clearances were 1/4" less than the required minimum at the following switches: 59A, 67, 33A, 33B, according to 49 CFR Part 213 Section 143.
- Horn usage by train operators when entering "slow zone" locations was inconsistent and not performed in the manner required by SDTI Roadway Worker Protection Plan Section 100.5.

Recommendation:

1. SDTI should survey the entire mainline to ensure that switches are in compliance with 49 CFR Part 213 Section 143 "guard check" clearance requirements.
2. SDTI operators should comply with the rules and regulations governing horn usage, especially in Roadway Worker zones. SDTI should review its rules compliance program and increase unannounced field operation evaluations to ensure conformance with the SDTI Roadway Worker Protection Plan and the SDTI employee Rulebook.

3. Grade Crossing Warning Devices Inspections

Staff found the following non-compliant items:

- Flashing light units are not maintained by SDTI in compliance with 49 CFR Part 234 Section 217 at the following grade crossing locations: Allison Avenue, Massachusetts Avenue.
- Gate arm was not aligned in the horizontal position as required by 49 CFR Part 234, Section 223 and GO 75-D at the following location: Cedar Street.
- Milepost markings at SDTI grade crossings were not posted as required by GO 75-D.

Recommendation:

3. SDTI should survey the entire mainline to ensure that all flashing light units are in compliance with 49 CFR Part 234 requirements.
4. SDTI should survey the entire mainline to ensure that all grade crossing gate arm heights are in compliance with GO 75-D requirements.
5. SDTI should survey the entire mainline to ensure that all grade crossings have the milepost identification markers as required by GO 75-D.

4. Traction Power Inspections

Staff found the following non-compliant items:

- Staff observed GO 95 Rule 74.4F1 non-compliances at Mile Post 19.50 and switch E27A of the Green Line, and on H Street Station of the Blue Line.
- Staff observed GO 95 Rule 84.4D non-compliances at poles near the E27B switch of Orange Line and at the 3rd and 5th poles east of Palomar Station.
- Staff observed GO 95 Rule 56.9 non-compliances at the first pole east of Imperial Station on the Blue line.
- Staff observed GO 95 Rule 31.1 non-compliances. Johnny Ball³ insulator was loose at the 4th pole east of Alvorado Station. Two guy guards were buried in concrete at the center pole east of Palomar Station.

Recommendation:

6. SDTI should survey the entire mainline to ensure compliance with GO 95 Rules 74.4-F1, 84.4D, and 56.9 requirements.
7. SDTI should repair the loose Johnny Balls and expose the guy guards noted in the findings in accordance with GO 95 Rule 31.1 requirements.

5. Hazardous Materials and Chemical Management

³ Johnny Ball insulator refers to the guy strain insulator

No findings of non-compliance; no recommendations.

6. **Safety Data Acquisition and Analysis**

No findings of non-compliance; no recommendations.

7. **Accident Reporting and Investigation**

No findings of non-compliance; no recommendations.

8. **Emergency Management Program**

Staff found the following non-compliant items:

- SDTI SSPP Section 6.1.9 does not reflect actual SDTI practice with respect to Security and Safety department responsibilities in accordance with the requirements of GO 164-D section 3.2(k).

Recommendation:

8. SDTI should revise SSPP Section 6.1.9 to reflect actual SDTI practice in accordance with GO 164-D Section 3.2(k).

9. **Hazard Management Program**

No findings of non-compliance; no recommendations.

10. **Annual Internal Safety Audits**

Staff found the following non-compliant items:

- The information in the 2007 and 2008 Safety Audit Schedules identifying which SSPP safety elements were covered was inconsistent with each other.

Recommendation:

9. SDTI should revise the Internal Safety Review schedule to ensure that all 21 SSPP safety elements are completed within a 3 year period in accordance with GO 164-D Section 5.2.

11. **Training and Certification Program for Rail Employees**

No findings of non-compliance; no recommendations.

12. **Facilities and Right Of Way (ROW) Maintenance**

Staff found the following non-compliant items:

- Fencing along portions of the mainline requires maintenance. Staff observed collapsed fencing west of the Euclid Avenue Station, west of the Grantville Station, and on portions of the Blue Line South. (GO-143B Section 9.03)
- Vegetation at the 8th Ave crossing next to City College Station may obstruct a Train Operator's visibility of the traffic signals. (GO-143B Section 9.12)

Recommendation:

10. SDTI should repair all damaged fencing on the SDTI right of way, in accordance with GO-143B Section 9.03.
11. SDTI should clear vegetation on the right-of-way in accordance with GO-143B Section 9.12.

13. **Structural/Concrete Inspections and Maintenance**

Staff found the following non-compliant items:

- Documentation was not available for review to determine if bridge inspections were performed every five years as required by the SDTI SSPP Section 5.3.3.

Recommendation:

12. SDTI should perform bridge inspections every five years as required by SDTI SSPP Section 5.3.3.

14. **Gated Crossings Equipment Maintenance**

Staff found the following non-compliant items:

- The F and G Street Quarterly inspections in 2009 do not meet the scheduled requirements as required by SDTI SSPP Section 5.3.3 and SDTI SOP SIG-2001.

- The H Street Monthly inspections for May-October 2008 indicate a “Needs Correction.” No remedial action or corrective action was indicated by SDTI staff as required by the SDTI SSPP Section 5.3.3 and SDTI SOP SIG-2001.
- The Hazard Center Dr. West inspections for March-December 2008 indicate a “Needs Correction.” No remedial action or corrective action was indicated by SDTI staff to address the issue as required by the SDTI SSPP Section 5.3.3 and SDTI SOP SIG-2001.

Recommendation:

13. SDTI should review its crossing equipment test and inspection schedule for monthly, quarterly, and annual inspections and revise as necessary to meet frequency standards.
14. SDTI should address issues identified in crossing equipment inspection forms with remedial action or corrective actions required and properly document them.

15. **Traction Power Maintenance**

No findings of non-compliance; no recommendations.

16. **San Diego State University (SDSU) Scheduled Maintenance**

Staff found the following non-compliant item:

- SDTI performs emergency ventilation and jet fan maintenance at SDSU annually instead of monthly as stated in SSPP Section 5.3.3.
- SDTI verifies sump pump operation in rainy seasons biannually instead of monthly as stated in SSPP Section 5.3.3.
- SDTI tests its emergency phones annually instead of monthly as stated in SSPP Section 5.3.3.

Recommendation:

15. SDTI should conduct inspections in accordance with SSPP Section 5.3.3.

17. **Track and Switch Maintenance**

No findings of non-compliance; no recommendations.

18. **Signal & Vital Relay Maintenance**

No findings of non-compliance; no recommendations.

19. **Operations Control Center**

No findings of non-compliance; no recommendations.

20. **Review of Operation Rules and Procedures**

No findings of non-compliance; no recommendations.

21. **Hours of Service Records**

No findings of non-compliance; no recommendations.

22. **Program of Operational Evaluations**

No findings of non-compliance; no recommendations.

23. **Safety Committees**

No findings of non-compliance; no recommendations.

24. **Light Rail Vehicle (LRV) Maintenance**

No findings of non-compliance; no recommendations.

25. **Drug and Alcohol Policy**

No findings of non-compliance; no recommendations.

26. **Calibration of Test Equipment**

No findings of non-compliance; no recommendations.

27. **SSPP Implementation Interagency Coordination**

No findings of non-compliance; no recommendations.

28. **Procurement**

No findings of non-compliance; no recommendations.

29. **SANDAG Contractor Safety Program**

No findings of non-compliance; no recommendations.

30. **SANDAG Safety Certification**

No findings of non-compliance; no recommendations.

31. **SANDAG Configuration Management**

Staff found the following non-compliant item:

- SANDAG Configuration Management Plan document is in draft form. A finalized and approved version is required by GO-164D section 3.2(q).

Recommendation:

16. SANDAG/SDTI should approve and start implementing the Configuration Management Plan for the Engineering and Construction Management Division document.

17. SDTI SSPP Section 8.3.2 should reference the Configuration Management Plan for the Engineering and Construction Management Division document.

32. **Rules Compliance and Procedures Review**

Staff found the following non-compliant items:

- Staff observed train operator who averaged 5 MPH over the maximum approved speed limit. Train operator was observed traveling up to 8 MPH (travelling at 43 MPH) over the posted speed limit in non-conformance to SDTI Rule 2.1.14.

- Train operator did not sound the audible warning until passing workers on the right of way in non-conformance to SDTI Roadway Worker Protection Plan Rule 100.5
- Train operator horn use and sequence was inconsistent at grade crossings in non-conformance to SDTI Rule 4.1.1.

Recommendation:

18. SDTI should reinforce the urgency for train operators to follow rules and regulations, including speed limit restrictions and the use of audible warnings where appropriate, through rules compliance testing.

APPENDICES

- A. Abbreviations List
- B. SDTI 2009 Safety Review Checklist Index
- C. SDTI 2009 Safety Review Recommendations List
- D. SDTI 2009 Safety Review Checklists

**APPENDIX A
ABBREVIATIONS LIST**

Acronym	Definition
CAP	Corrective Action Plan
CFR	Code of Federal Regulations
COMMISSION	California Public Utilities Commission
COO	Chief Operating Officer
CPSD	Consumer Protection and Safety Division
CPUC	California Public Utilities Commission
EIC	Engineer in Charge
FTA	Federal Transit Administration
GO	General Order
ISA	Internal Safety Audit
LRV	Light Rail Vehicle
MSDS	Material Safety Data Sheet
OCC	Operation Control Center
OCS	Overhead Catenary System
PMI	Preventative Maintenance Inspection
ROW	Right of Way
RWP	Roadway Worker Protection
SANDAG	San Diego Association of Governments
SDIV	San Diego And Imperial Valley Railroad
SDSU	San Diego State University
SDTI	San Diego Trolley, Inc.
SOP	Standard Operating Procedure
SSPP	System Safety Program Plan
T/O	Train Operator

TPSS

Traction Power Substation

APPENDIX B
2009 SDTI SAFETY REVIEW CHECKLIST INDEX

No.	Element / Characteristic	No.	Element / Characteristic
1	Light Rail Vehicle Inspection	17	Track and Switch Maintenance
2	Track and Switch Inspection	18	Signal & Vital Relay Maintenance
3	Grade Crossing Warning Devices Inspection	19	Operations Control Center
4	Traction Power Inspection	20	Review of Operations Rules and Procedures
5	Hazardous Materials and Chemical Management	21	Hours of Service Records
6	Safety Data Acquisition and Analysis	22	Program of Operational Evaluations
7	Accident Reporting and Investigation	23	Safety Committees
8	Emergency Management Program	24	LRV Maintenance
9	Hazard Management Program	25	Drug and Alcohol Policy
10	Annual Internal Safety Audit	26	Calibration of Test Equipment
11	Training and Certification Program for Rail Employees	27	SSPP Implementation Interagency Coordination
12	Facilities and ROW Maintenance	28	Procurement
13	Structural/Concrete Inspections and Maintenance	29	SANDAG Contractor Safety Program
14	Gated Crossings Equipment Maintenance	30	SANDAG Safety Certification
15	Traction Power Maintenance	31	SANDAG Configuration Management
16	SDSU Scheduled Maintenance	32	Operational Observations

APPENDIX C
2009 SDTI SAFETY AND REVIEW RECOMMENDATIONS LIST

No.	Recommendation	Checklist No.
1	SDTI should survey the entire mainline to ensure that switches are in compliance with 49 CFR Part 213 Section 143 “guard check” clearance requirements.	2
2	SDTI operators should comply with the rules and regulations governing horn usage especially in Roadway Worker zones. SDTI should review its rules compliance program and increase unannounced field operation evaluations to ensure conformance with the SDTI Roadway Worker Protection Plan and the SDTI employee Rulebook.	2
3	SDTI should survey the entire mainline to ensure that all flashing light units are in compliance with 49 CFR Part 234 requirements.	3
4	SDTI should survey the entire mainline to ensure that all grade crossing gate arm heights are in compliance with GO 75-D requirements.	3
5	SDTI should survey the entire mainline to ensure that all grade crossings have the milepost identification markers as required by GO 75-D.	3
6	SDTI should survey the entire mainline to ensure compliance with GO 95 Rules 74.4-F1, 84.4D, and 56.9 requirements.	4
7	SDTI should repair the loose Johnny Balls and expose the guy guards noted in the findings in accordance with GO 95 Rule 31.1 requirements	4
8	SDTI should revise SSPP Section 6.1.9 to reflect actual SDTI practice in accordance with GO 164-D Section 3.2(k).	8
9	SDTI should revise the Internal Safety Review schedule to ensure that all 21 SSPP safety elements are completed within a 3 year period in accordance with GO 164-D Section 5.2.	10
10	SDTI should repair all damaged fencing on the SDTI right of way, in accordance with GO-143B Section 9.03.	12
11	SDTI should clear vegetation on the right-of-way in accordance with GO-143B Section 9.12.	12
12	SDTI should perform bridge inspections every 5 years as required by SDTI SSPP Section 5.3.3.	13
13	SDTI should review their crossing equipment test and inspection schedule for monthly, quarterly, and annual inspections and revise as necessary to meet frequency standards.	14

14	SDTI should address issues identified in crossing equipment inspection forms with remedial action or corrective actions required and properly document them.	14
15	SDTI should conduct inspections in accordance with SSPP Section 5.3.3.	16
16	SANDAG/SDTI should approve and start implementing the Configuration Management Plan for the Engineering and Construction Management Division document.	31
17	SDTI SSPP Section 8.3.2 should reference the Configuration Management Plan for the Engineering and Construction Management Division document.	31
18	SDTI should reinforce the urgency for train operators to follow rules and regulations, including speed limit restrictions and the use of audible warnings where appropriate, through rules compliance testing.	32

APPENDIX D

2009 SDTI SAFETY REVIEW CHECKLISTS

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	1	Light Rail Vehicle (LRV) Inspection	
Date of Review	June 17, 2009	Department	LRV Maintenance
Inspectors	Michael Borer	Persons Contacted	Lee Summerlott – Superintendent of LRV Maintenance Andy Goddard Jr. – Assistant Superintendent of LRV Maintenance

REFERENCE CRITERIA

1. CPUC GO 143-B Section 14.04
2. SDTI SSPP (April 2009) Section 5.2.2
3. SDTI SOP E-2002 Daily Inspection, E-2003 6 Month Oil Inspection, E-2004 7.5K Inspection, E-2005 22.5K Inspection, E-2006 1-Year Inspection

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Light Rail Vehicle Inspection – CPUC Inspector

1. Randomly select at least two U2-models, two SD-100 models, and two S70 models and perform detailed inspections to determine if SDTI properly and adequately maintaining
 - A. Traction Motors
 - B. Truck, Axle, wheel components
 - C. Brake systems – friction, dynamic, and track
 - D. Doors and pantograph assemblies
 - E. Coupling and drawbar mechanisms
 - F. Passenger compartment/safety appliances
 - G. Operator cab/appurtenance
2. Based on the review and the inspections, determine whether or not the selected LRV's are in compliance with the applicable reference criteria.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff inspected two U2 model light rail vehicles (Nos. 1028, and 1061) and one SD-100 model light rail vehicle (Nos. 2040) at the Light Rail Vehicle Maintenance Facilities. The scope of inspection included:

- Visual checks of passenger cab/safety appliances, operator's cab/appurtenance, trucks/wheels components, traction motors, brake systems, pantographs, and coupling mechanism.
- Review of Maintenance Inspection forms for Daily Inspection Report, 7.5K, 22K, 15K, 30K, and 60K Inspection Report. The U2's covered years 07, and 08. SD100 covered years 07, and 08. S70 covered years 08, and 09.
- Interviews with and observation of vehicle maintainers performing preventive maintenance inspection/repairs of LRVs on shop tracks.
- Comparison of completed maintenance / inspection reports against the actual work order authorizing repairs.
- Review of SDTI's Maintenance Procedures

Staff interviewed Asst. Superintendent and Superintendent of LRV Maintenance for 7.5k and 22k inspections to determine the process used by the LRV Maintenance Department for performing inspections.

Findings:

1. Daily Inspections

Staff reviewed maintenance records of two U2 vehicles (Nos. 1021, and 1065), two SD100 vehicles (Nos. 2005, and 2050), and two S70 vehicles (Nos. 3001 and 3008). Staff did not find any exceptions. Staff performed a visual inspection of U2-Model Car Nos. 1028 and 1061 to confirm that any defects found by SDTI's LRV Maintainer were properly noted on the Daily Inspection form of each car. Staff did not find exceptions for any of the 4 vehicles reviewed.

2. 7.5K Inspections

Staff performed a visual inspection of SD-100 Model Car No. 2040 undergoing a 7.5K inspection at the time of staff visit. Staff confirmed that defects found by SDTI's LRV Maintainer were properly noted by SDTI staff on the 7.5 K Inspection form of each car. Staff did not find any exceptions.

3. Blue Flag Protection

Staff observed that all vehicles that were undergoing maintenance were properly protected by a "Blue Flag" as required by SDTI Maintenance Procedures.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR
SAN DIEGO TROLLEY, INC.**

Checklist	2	Track and Switch Inspections – CPUC Inspector	
Date of Audit	June 17-19, 2009	Department	Wayside
Inspectors	John Madriaga Joey Bigornia	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Ricardo Medina – Wayside Track Supervisor

REFERENCE CRITERIA

1. CPUC GO 143-B Section 14.05
2. SDTI SSPP (April 2009) Section 5.3.3
3. 49 CFR Part 213-Track Safety Standards

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Track and Switch Inspections – CPUC Inspector

1. Randomly select at least two sections of the mainline track and two turnout/diamond crossings on the Blue Line, Orange Line, and Green Line and perform visual & dimensional inspections/measurements to determine whether or not all track components within the areas selected are in compliance with the applicable reference criteria.
2. Randomly select four switches and inspect for gauge measurements and components and perform an adjustment and functional check of selected switch machines to determine whether or not all selected components are in compliance with the applicable reference criteria.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff inspected track, switches and turnouts on Blue Line, Green Line, and Orange Line. Measurements were taken by staff at each turnout of the associated switches and gauge of track. Staff also observed SDTI personnel following the Roadway Worker Protection program in effect while mainline track and switch inspections were being performed and during a tie-replacement project south of the Blue Line Palomar Street Station.

Findings:

A. Track Inspection

1. Staff performed a visual inspection of the Blue Line on-board the train for the right-of-

way between Imperial Transfer Station and the International Border Station. No exceptions were noted by staff.

2. Staff performed a visual inspection of the Green Line and Orange Line on-board the train for the right-of-way between Old Town Transit Center Station and the Santee Towne Center Station. No exceptions were noted by staff.

B. Turnout and Switch Inspection

1. Blue Line turnout and the following associated switches were inspected
 - (a) Switch 59A
 - (b) Switch 59B
 - (c) F Street Diamond
 - (d) Switch 67
 - (e) Switch 33A
 - (f) Switch 33B

2. Orange Line turnout and the following associated switches were inspected
 - (a) Switch 7A
 - (b) Switch 7B
 - (c) Switch E-13A
 - (d) Switch E-13B
 - (e) Broadway Wye

3. Green Line turnout and the following associated switches were inspected
 - (a) Switch M33A
 - (b) Switch M33B
 - (c) Switch 35A
 - (d) Switch 35B
 - (e) Baltimore Junction

The following was noted at each location:

1. Guard check clearances were 1/4" too small at:
 - eastbound track: Switch 59A
 - eastbound track: Switch S67
 - westbound and eastbound track: Switch 33A/B

2. Roadway Wayside Protection – Tie Replacement Project south of Palomar Station.

Staff accompanied by SDTI's Track Supervisor checked in with SDTI's Engineer in Charge (EIC) for a job briefing prior to entering the mainline right-of-way (ROW). Staff was also provided a job briefing by a "flagger" who was assigned to alert wayside workers of an approaching train and to ensure the wayside workers were clear of the ROW prior to the train entering the workzone. Staff was advised by the EIC and flagger when alerted of an approaching train to clear the westbound tracks (northbound) by moving outside of the eastbound (southbound) tracks until the train had passed.

Staff observed the following as trains approached the workzone:

1. Trains slowed down to acknowledge the wayside workers presence; however the train operator sounding of the "quacker horn" or federal horn was inconsistent.
2. Staff cleared the work zone by moving to the outside of the eastbound tracks; however, some wayside workers were cleared to the outside of the westbound tracks.
3. It wasn't visually clear if the flagger had a whistle around the neck; however, Staff did observe the air-horn stored approximately 25-feet away in a travel bag.
4. Staff noticed that the flagger wore tennis shoes instead of a "heeled" type of shoe as required in 49 CFR Part 214.

3. Roadway Wayside Protection – track inspection on mainline

Staff accompanied by SDTI's Track Supervisor waited for clearance from SDTI's Operations Control Center prior to entering the SDTI mainline ROW. Staff observed the Track Supervisor provide hand signals as SDTI trains slowed down at locations where track inspections were being performed. Staff further observed that train operators (T/O) provide an audible warning through the use of the train horn prior to entering the "slow zone" locations and noted inconsistencies where T/O's either used the "quacker horn" or "federal horn". In some instances, the T/O sounded the horn once prior to entering the "slow zone" and no other audible warning was made as the train passed the work zone. During the Switch 33 A/B inspection on June 17, 2009 the westbound train T/O did not sound an audible warning as required by SDTI Roadway Worker Plan Section 100.5 until it passed the SDTI Track Supervisor and PUC inspectors.

Recommendations:

1. SDTI should survey the entire mainline to ensure that switches are in compliance with 49 CFR Part 213 Section 143 "guard check" clearance requirements.
2. SDTI operators should comply with the rules and regulations governing horn usage especially in Roadway Worker zones. SDTI should review its rules compliance program and

increase unannounced field operation evaluations to ensure conformance with the SDTI Roadway Worker Protection Plan and the SDTI employee Rulebook.

**2009 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR
SAN DIEGO TROLLEY, INC.**

Checklist	3	Grade Crossing Warning Devices – CPUC Inspector	
Date of Audit	June 15-19, 2009	Department	Wayside
Inspectors	Gerald Muffley Joey Bigornia	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI SSPP (April 2009) Section 5.3.3
2. 49 CFR Part 234 – Grade Crossing Signal System Safety
3. 49 CFR Part 236 – Rules, Standards, & Instructions Governing the Installation, Inspection, Maintenance, and Repair of Signal and Train Control Systems Devices and Appliances
4. SDTI SOP SIG-2001, Signal System, Switch, and Grade Crossing Tests and Standards, dated 6/18/2003

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Grade Crossing Warning Devices – CPUC Inspector

Randomly select at least five gated crossings on the Blue Line, Orange Line, and Green Line and perform detailed inspections to determine whether or not the selected crossings are in compliance with the applicable reference criteria.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff selected grade crossings on SDTI lines and inspected each for compliance with 49 CFR Part 234, 49 CFR Part 236 and General Order 75-D.

Findings:

A. Metro Blue Line

1. Sigsbee Street
2. Beardsley Avenue
3. Cesar E. Chavez Parkway
4. Schley Street
5. 28th Street

6. Palomar Street
7. Anita Street
8. Palm Avenue
9. 27th Street
10. Iris Avenue
11. Dairy Mart Road

Exceptions noted by staff for the Blue Line grade crossing inspection are as follows:

1. Number of tracks signage faded, 49 CFR Part 234, Section 245 requirement – Sigsbee Street
2. Gate arm not in horizontal position, 49 CFR Part 234, Section 223 requirement; the gate arm was adjusted during the inspection– Sigsbee Street
3. Gate arms are less than minimum requirement of 3' 6" to 4' 6" above crown of roadway – GO 75-D requirement

B. Metro Green Line

1. Ash Street
2. Cedar Street
3. Palm Street
4. Taylor Street
5. Friars Road
6. Hazard Center Driveway (west)
7. Hazard Center Driveway (east)
8. 70th Street

Exceptions noted by staff for the Green Line grade crossing inspection are:

1. Gate arm not in horizontal position, 49 CFR Part 234, Section 223 requirement; The gate arm was adjusted during the inspection– Cedar Street
2. Number of tracks signage faded, 49 CFR Part 234, Section 245 requirement – Palm Street

C. Metro Orange Line

1. Marshall Avenue
2. Bradley Avenue
3. 62nd Street
4. 65th Street

5. 69th Street
6. Massachusetts Avenue
7. La Mesa Blvd.
8. Allison Avenue
9. University Avenue
10. Interstate 8 (off-ramp)
11. Front Street
12. Broadway Wye

Exceptions noted by staff for the Orange Line grade crossing inspection are:

1. Flashing light not visible to highway user; background shrouds and hoods are faded, need repainting: 49 CFR Part 234, Section 217 requirement - Allison Avenue
2. Flashing light not visible to highway user; background shrouds and hoods are faded, need repainting: 49 CFR Part 234, Section 217 requirement - Massachusetts Avenue

GENERAL (All Lines)

Almost all of SDTI's grade crossings do not have milepost markings as required by GO75-D.

Recommendations:

1. SDTI should survey the entire mainline to ensure that all flashing light units are in compliance with 49 CFR Part 234 requirements.
2. SDTI should survey the entire mainline to ensure that all grade crossing gate arm heights are in compliance with GO 75-D requirements.
3. SDTI should survey the entire mainline to ensure that all grade crossings have the milepost identification markers as required by GO 75-D.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	4	Traction Power Inspection	
Date of Review	June 23, 2009	Department	Wayside
Inspectors	Colleen Sullivan Raymond Fugere	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance Joe Dieterle – Maintenance Supervisor

REFERENCE CRITERIA

1. CPUC General Order 95 – Rules for Overhead Electric Line Construction
2. GO 143-B, Section 10 and 14.06
3. SDTI SSPP April 2009 Section 5.3.3
4. SDTI SOP CAT-101
5. SDTI Substation Inspection, Quarterly Inspection Procedure

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Traction Power Inspection – CPUC Inspector

Randomly select at least three overhead catenary system (OCS) sections and three Traction Power Substations (TPSS) on the Blue Line, Orange Line, and Green Line and perform detailed inspections to determine whether or not the selected OCS sections and TPSS are in compliance with the applicable criteria.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff randomly selected three OCS sections and three TPSS on the Blue Line, Orange Line, and Green Line for inspection.

Findings:

1. Traction Power Substations inspected:

A. Blue Line

1. Schley

2. Dairy Mart Road

B. Green Line

1. Linda Vista
2. Fletcher Parkway Station

C. Orange Line

1. Hill Street
2. Front Street

The SDTI Inspection Log available at each substation showed the date of the last inspection and identified maintainer responsible for the task. The Fletcher Parkway Station which is approximately 30 years old was in excellent condition. No exceptions were noted by staff on any of the Traction Power Substations inspected.

2. OCS Wire Height Inspections

Where measured by staff, OCS wire heights were in compliance with General Order 95 requirements.

A. Green Line

1. Santee Station: First Pole – 20 feet
2. Santee Station: Third Pole – 20 feet
3. Santee Station: Crossing in Santee Plaza – 19 feet 8 inches
4. 70th Station: West Bound – 19 feet 5.25 inches
5. 70th Station: East Bound – 19 feet 5.5 inches
6. Second Pole West of 70th Station: West Bound – 17 feet 2 inches
7. Second Pole West of 70th Station: East Bound – 17 feet 3 inches
8. Alvarado Station: West Bound – 19 feet 5 inches
9. Alvarado Station: East Bound – 19 feet 6 inches

B. Orange Line and Green Line (these two lines overlap at these locations)

1. Crossing Santee and Cuyamac Crossing – 18 feet 9.5 inches
2. El Cajon Station: West Bound – 22 feet 4 inches
3. El Cajon Station: East Bound – 22 feet 5 inches

C. Blue Line

1. E Street Station: West Bound – 22 feet 5 inches
2. E Street Station: East Bound – 22 feet 3 inches
3. H Street Station: West Bound – 22 feet 7 inches
4. H Street Station: East Bound – 22 feet 5 inches
5. Palomar Station: West Bound – 22 feet 5 inches
6. Palomar Station East Bound – 22 feet 5 inches

3. **General Order 95 Rule 74.4F1 Non-compliances**

The following wires are non-compliant with GO 95 Rule 74.4 F1

A. Orange Line and Green Line (these two lines overlap at these locations)

1. Mile Post 19.50 – Line could fall due to single failure within 10 feet of Ground Line
2. Pole located by E27A Switch – Line could fall due to single failure within 10 feet of Ground Line

B. Blue Line

1. Second Pole West of H Street Station – Line could fall due to single failure within 10 feet of Ground Line

4. **General Order 95 Rule 74.4-F1 Compliance**

The following wires were in compliance with General Order 95 Rule 74.4-F1.

A. Green Line

1. Second Pole East of Alvarado Station – End of the Dynamic Weight Tension complies with Rule 74.4-F1
2. Fourth Pole East of Alvarado Station – End of the Dynamic Weight Tension complies with Rule 74.4-F1

5. **General Order 95 Rule 84.4-D Non-compliances**

The following wires are non-compliant with General Order 95 Rule 84.4

A. Orange Line and Green Line (these two lines overlap at these locations)

1. Pole located by E27B Switch – General Order 95 Rule 84.4-D requires communication conductors to clear poles not attached by 15 inches from the center line. The SDTI

communication conductor was not attached and within 15 inches of the center line.

B. Blue Line

1. Third and Fifth Pole East of Palomar Station on East Bound Side – General Order 95 Rule 84.4-D requires communication conductors to clear poles not attached by 15 inches from the center line. The SDTI communication conductor was not attached and within 15 inches of the center line.

6. **General Order 95 Rule 56.9 Non-compliances**

The following wires are in non-compliance with General Order 95 Rule 56.9

A. Blue Line

1. First Pole East of Station on East Side: General Order 95 Rule 56.9 requires a substantial marker of suitable material, including but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. No guy guard was found at this location.

7. **General Order 95 Rule 31.1 Non-compliances**

The following locations require general maintenance repair.

A. Green Line

1. Fourth Pole East of Alvarado Station - Johnny Ball insulator loose (i.e. twisted). Inspect and repair the connections.

B. Blue Line

1. Palomar Station: Center pole further East in Station – two guy guards buried in concrete. The guy guards should be exposed.

Recommendations:

1. SDTI should survey the entire mainline to ensure compliance with GO 95 Rules 74.4-F1, 84.4D, and 56.9 requirements.
2. SDTI should repair the loose Johnny Balls and expose the guy guards noted in the findings in accordance with GO 95 Rule 31.1 requirements.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

Checklist	5	Hazardous Materials and Chemicals Management	
Date of Review	June 25, 2009	Department	Safety
Reviewers	Claudia Lam	Persons Contacted	Nancy Dock – System Safety Manager Robert Dischert – Stores Manager

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Sections 4.1.4 & 6.1.7
2. SDTI Hazard Communication Program

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Hazardous Materials and Chemicals Management

Interview the SDTI representative in charge of Hazardous Materials and Chemical Management and review records for the past 3 years to determine the following:

1. Employees within the Light Rail Vehicle (LRV) Maintenance, Wayside, Track Maintenance, and Facilities/Services Departments who may be exposed to hazardous materials or chemicals received the training required as specified in Hazard Communication Program (initial training by the employee's department and annual by the System Safety Manager).
2. Material Safety Data Sheets (MSDS) are maintained and updated.
3. Records exist that show new chemicals are reviewed by the superintendents of each department prior to their issuance.
4. Number of incidents involving either the release **or** exposure to hazardous chemicals at Rail Maintenance or Facilities Departments.
5. Steps taken by SDTI to minimize above incidents and improve its response procedures.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities & Findings:

1. Staff randomly selected one employee from each department (LRV Maintenance, Wayside, Track Maintenance, and Facilities Department) and reviewed individual employee confirmation of attendance (sign-in sheets) at the session and copies of their exams of Hazardous Communication Program re-certification for Year 2007-2008. Records showed

the Safety Manager performed the Annual requirement as follows:

<u>Department</u>	<u>Year 2007</u>	<u>Year 2008</u>
LRV Maintenance	8/1/07	12/18/08
Wayside	2/7/08	6/9/09
Track Maintenance	1/13/07	2/7/08
Facilities Department	7/6/07	8/21/08

2. Staff interviewed the Stores Manager and reviewed the MSDS documents. MSDS are kept by SDTI staff in alphabetical order and accessible to employees at their departments and store room. Safety department also kept a copy for audit purpose. When new chemical products arrived, shift supervisors of that department reviewed the MSDS. If the MSDS is missing, shift supervisors will obtain the MSDS copy from the website. If MSDS is not accessible from website, the new chemical cannot be used until MSDS documentation is received from the manufacture.
3. New chemicals are reviewed by department shift supervisors. Shift safety meetings (bilingual) are held by shift supervisors to introduce the new chemical and familiarize the employees prior to usage.
4. No incidents have occurred (either the release or exposure to hazardous chemicals) at Rail Maintenance or Facilities Departments.
5. SDTI has taken preventive steps to avoid the possibility of occurrence although there have been no recent incidents. One example provided was "Yard Traction Installation Project" where contractors were required to work on contaminated soils. SDTI had safety personnel monitoring the process to prevent the contractors from being exposed to the contaminated soil. Another example explained by the Safety Manager was disposal and blood clean up at an accident site. SDTI contracts with Patriot Environmental Service when notified to report to an accident/incident scene to clean up blood, residue, and properly dispose of contaminants. In addition, SDTI has SOP 106.05 and SOP 106.15 to improve the response procedures when a hazardous incident ever occurs.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

Checklist	6	Safety Data Acquisition & Analysis	
Date of Review	June 23, 2009	Department	Safety
Reviewers	Raed Dwairi	Persons Contacted	Nancy Dock – System Safety Manager James Dow – Manager of Risk and Loss Prevention

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 6.1.8

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Safety Data Acquisition & Analysis

Interview the SDTI representative in charge of Safety Data Acquisition & Analysis and review records for the past 3 years to determine the following:

1. SDTI collected & analyzed safety data from all sources such as rail accidents, employee injuries, complaints, emergency brake applications, unusual occurrences, and Controller Logs, etc (provide specific examples).
2. SDTI held monthly meetings with attendance from each affected department to identify & mitigate safety concerns.
3. SDTI established trends resulting in recommendations to affected departments.
4. SDTI tracked corrective actions that addressed recommendations it developed to timely completion.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed both the System Safety Manager and the Manager of Risk & Loss Prevention and reviewed appropriate documentation prepared during the last three years.

Findings:

Staff determined the following:

1. SDTI collected and analyzed safety data from both SDTI rail and San Diego Transit Corporation bus incidents and used the information to establish trends resulting in recommendations to affected departments. SDTI has used the data recently by working with

the City of San Diego to enhance visibility by tree trimming and additional signage on several intersections such as C Street Crossover Project.

2. SDTI held monthly meetings with attendance from each affected department to identify safety concerns. Staff reviewed the monthly safety committee meetings and had the opportunity to attend a early June 2009 meeting prior to the on-site safety review.
3. SDTI has a system in place to track corrective actions to completion in a timely manner
4. No exceptions were noted by staff.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

Checklist	7	Accident Reporting and Investigation	
Date of Review	June 22, 2009	Department	Safety
Reviewers	Jimmy Xia	Persons Contacted	Nancy Dock – System Safety Manager

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 9
2. G.O. 164-D (Effective May 3, 2007)
3. SDTI Accident Investigation Procedures (SSPP Section 9)

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Accident Reporting and Investigation

Interview the SDTI representative in charge of accident reporting and investigation and review at least six immediately reportable incidents submitted to the CPUC since May 3, 2007 (the effective date of General Order (G.O.) 164-D) to determine if:

- A. SDTI reported the accidents to the CPUC within two hours as required by G.O. 164-D, Sections 7.1 & 7.2
- B. The immediately reportable incident notifications to CPUC staff contained all of the information required by G.O. 164-D Section 7.3.
- C. SDTI filed monthly accident corrective action summary reports as required by G.O. 164-D, Sections 7.6 and 9.1(a) and other applicable sections in Section 9 of the G.O.
- D. The accident investigations were conducted in accordance with the requirements of G.O. 164-D, SDTI approved accident investigation procedures, and the requirements of section 9 of the SSPP.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI's System Safety Manager responsible for accident reporting and investigation. Staff randomly selected and reviewed the files from the following six reportable accident reports submitted to the CPUC since May 3, 2007:

1. LRV vs. Automobile accident at Moss St grade crossing in Chula Vista on 7/14/2007 with one fatality (suicide). SDTI's Final Accident Report to CPUC dated 7/30/07 and the SDTI internal accident files were reviewed by staff, and the report had no recommendations.
2. LRV vs. Automobile accident that occurred at Park Blvd and Market St on 11/6/07 with one

injury. SDTI's Final Accident Report to CPUC dated 12/6/07 and the SDTI internal accident files were reviewed by staff. The report had one Corrective Action Plan (CAP) was closed by SDTI staff.

3. LRV vs. Automobile accident at Billy Mitchell Drive grade crossing in Santee on 3/14/08 with one fatality. SDTI Final Accident Report for CPUC dated 3/19/08 and the SDTI internal accident files were reviewed by staff. The report had no recommendations.
4. LRV vs. Automobile accident at State and C Street in San Diego on 4/27/08 with one injury. SDTI Final Accident Report for CPUC dated 5/7/08 and the SDTI internal accident files were reviewed by staff. The report had no recommendations.
5. LRV vs. Bus accident that occurred at Palm Avenue grade crossing/Blue Line South in San Diego on 1/12/09 with one injury. The SDTI 60 Day EZ Form dated February 2009 and the SDTI internal accident files were reviewed by staff. The EZ Form had one recommendation and the recommendation was closed by SDTI staff.
6. LRV vs. Automobile accident that occurred at Park and Island Avenues in San Diego on 3/17/09 with one injury. The SDTI 60 Day EZ Form dated April 2009 and the SDTI internal accident files were reviewed by staff, and the EZ Form had no recommendations.

Findings:

Listed below are the findings from the interview and records review:

- a. SDTI System Safety Manager notifies CPUC staff within two hours of reportable accidents by telephone as required by GO 164-D, Sections 7.1 and 7.2. The system safety manager then completes and submits a Form R for each reportable accident to CPUC staff within one day after the accident occurs via email.
- b. All six SDTI Form Rs reviewed by staff show all accidents were reported to the CPUC within two hours as required by GO 164-D, Section 7.1. Also, all six of the Form Rs submitted to the CPUC contained all of the information required by GO 164-D, Section 7.3.
- c. Staff reviewed six accident files and the accompanying accident reports. Major accident reports for accidents #1 – 4 as listed above were completed by SDTI staff. 60 Day EZ Forms for accidents #5 and #6 as listed above were completed by SDTI staff. The reports for accidents #1 – 4 as listed above provided details of accident synopsis, scene description, post-incident inspection / investigation and evidence, witness statements, findings, probable cause, contributing factors, conclusions, and recommendations for these accidents. The EZ Forms for accidents #5 and #6 as listed above included various accident data, the checklist items related to the accident are completed by the SDTI's accident investigator, detailed description of the accident or hazard including synopsis, primary cause, contributing factors, and recommendations. The investigation reports for all six accidents reviewed by staff meet the requirement stated by GO 164-D, section 8.3c.

- d. All six accident reports reviewed by staff had the accompanying cover letters addressed to CPUC stating SDTI was submitting the accident reports to CPUC in accordance with GO 143-B. Such cover letters for accidents #1 – 6 as listed above are dated 8/30/07, 12/30/07, 4/30/08, 5/30/08, 2/28/09, and 4/30/09, respectively. SDTI submitted its accident report for each of the six accidents reviewed by staff to CPUC within 60 calendar days of the occurrence of the accident as required by GO 164-D, Section 8.3e.
- e. The SDTI internal accident file folder for accidents #1 – 4 as listed above contained the SDTI Form R, collision report, unusual occurrences report (if applicable), accident photos, employee (Train Operator) statement, witness cards (if any), additional narrative report (if any), incident notification report, personal injury report, property damage report, post incident drug / alcohol screen (if applicable), LRV defect report, (LRV) maintenance system safety check report, (MOW or Maintenance of Way) maintenance system safety check report, CD of photos, documentation, radio and phone recordings (if any), and police report and coroner's report if available. The SDTI internal accident file folder for accidents #5 and #6 as listed above contained the SDTI Form R, collision report, accident photos, Train Operator (T/O) report / statement, and witness cards (if any).
- f. All six accidents reviewed contained a copy of a memorandum regarding rulings resulting from the Accident Review Committee meeting with the T/O involved in the accident.
- g. The Form T for accident #1 as listed above dated August 2007 was submitted to CPUC staff in a timely manner. SDTI did not complete the Form T's for the other five accidents reviewed because SDTI stopped completing Form T's after starting to use the 60 Day EZ Forms. CPUC staff authorized SDTI to use 60 Day EZ forms to document accident investigations of minor accidents since late 2007. SDTI completes the EZ Forms for minor accidents such as fender benders.
- h. SDTI submitted Form V's for the months in which accidents #1 – 6 occurred to CPUC within the time period as required by GO 164-D, Section 7.6.
- i. SDTI's accident reports for accidents #1, 3, 4, and 6 as listed above had no recommendations, so SDTI has no monthly accident corrective action summary reports for these four accidents.
- j. The SDTI accident report for accident #2 as listed above initially had no recommendations when the report was written. Per SDTI's System Safety Manager, the T/O involved in this accident went out on "Medical Leave of Absence" after the accident and returned to work from leave in early February of 2008. The SDTI memo dated 1/14/08 regarding the Accident Review Committee Meeting for the incident stated that the Training Department will schedule the T/O to attend an 8-hour defensive driving enhancement class to help her with her safe operation. SDTI's System Safety Manager showed staff SDTI's memo dated 2/15/09 which showed that the T/O returned to work from her medical leave after completed the 40 hour Defensive Driving Refresher Course on 2/11/08, and On the Job Training from 2/10/09 to 2/14/09. SDTI did not send its memo dated 2/15/09 as mentioned above to CPUC staff before the date of this audit.

SDTI couldn't send the CAP status reports of accident retraining for the T/O to CPUC every 30 calendar days as required by GO 164-D, Section 9.2 because the T/O was on a medical leave after the accident until she returned to work.

- k. SDTI 60 Day EZ Form for accident #5 as listed above has one recommendation and showed the recommendation was closed, which meets GO 164-D, Section 9.2 requirements.
- l. SDTI conducted the accident investigations for the six accidents that were reviewed by staff in accordance with the requirements of GO 164-D and the SDTI accident investigation procedures.
- m. No exceptions were noted by staff.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	8	Emergency Response Program	
Date of Review	June 24, 2009	Department	Safety
Reviewers	Vincent Kwong	Persons Contacted	Nancy Dock – System Safety Manager

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 6.1.9
2. Emergency Response Agency Familiarization Program (ERAFP) Document

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Emergency Response Program

Interview the SDTI representative in charge of Emergency Response Program and review records for the past 3 years to determine if:

1. SDTI planned and carried out drills with the participation of the appropriate external agencies (local, state, and federal agencies)
2. SDTI critiqued its emergency response drills and documented identified deficiencies for the development and implementation of appropriate corrective actions.
3. SDTI performed periodic safety training with personnel from all emergency response agencies in area where SDTI operates.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed the SDTI Safety Manager in charge of the Emergency Agency Familiarization Program.

Staff also reviewed the reports of the previous training exercises.

1. SDTI in 2006 hosted a training exercise for the San Diego SWAT team to practice on the main safety concerns surrounding the yard and vehicles.
2. The Safety Manager has prepared a handout that is available to the respective agencies during training.
3. The Fire Department familiarization process includes understanding safety procedures and placement of sprinklers in the tunnels, stations, and substations.
4. Emergency agency familiarization training exercises are currently scheduled informally as necessary and by availability of the participants.

5. Funding has been an issue as well in planning these types of exercises.

Findings:

1. SDTI SSPP Section 6.1.9 does not reflect actual SDTI practice with respect to Security and Safety department responsibilities in accordance with the requirements of GO 164-D section 3.2(k).

Recommendations:

1. SDTI should revise SSPP Section 6.1.9 to reflect actual SDTI practice in accordance with GO 164-D Section 3.2(k).

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC.**

Checklist	9	Hazard Management Program	
Date of Review	June 24, 2009	Department	Safety
Reviewers	Dain Pankratz	Persons Contacted	Nancy Dock – System Safety Manager Fred Kroner – Assistant Superintendent of Transportation

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 7.4
2. G.O. 164-D, Section 6

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Hazard Management Program

Interview the SDTI representative in charge of Hazard Management Program and review records for the past 3 years to determine if:

1. SDTI followed its hazard management process and identified, categorized, and brought hazards down to acceptable levels of risk.
2. SDTI reported hazards to the Commission according to defined minimum thresholds as required by G.O. 164-D section 6(e).

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities & Findings:

1. Staff interviewed the SDTI Safety Manager and determined SDTI takes the following measures to mitigate hazards:
 - SDTI has various committees that meet regularly to discuss previous incidents and potential concerns.
 - Staff reviewed meeting minutes from the monthly Safety Committee, Major Incident Review Committee (MIRC), and the Field Operations Committee.
 - At the committees, SDTI addresses hazards raised by operations, wayside, maintenance, management, and the public.
 - SDTI documents the corrective actions for hazard mitigation through use of meeting minutes, trouble reports, rulebook / procedure changes, and reports.
 - Post-incident reviews are conducted by a panel to determine root-cause and

reoccurrence prevention.

2. SDTI has documented reports of hazards defined by their SSPP, also meeting the GO-164D thresholds. On January 14, 2008, SDTI reported a 'near-miss' Train vs. Bicyclist incident, potentially a Type 1A hazard as defined in the SSPP. SDTI informed staff within the 2-hour window then investigated the incident.

SDTI utilizes a safety incentive program for the operators, which is an industry best-practice. Positive-behavior, zero incidents, absences, etc. are rewarded with a ceremony and uniform-pins that can be worn by SDTI staff. Staff sees value in the incentive program.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	10	Annual Internal Safety Audit	
Date of Review	June 23, 2009	Department	Safety
Reviewers	Vincent Kwong	Persons Contacted	Nancy Dock – System Safety Manager

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 8
2. G.O. 164-D Section 5.0

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Annual Internal Safety Review

Interview SDTI Safety Manager and review annual internal safety audit documentation prepared during the last three years to determine whether or not SDTI complied with the requirements of GO 164-D, Section 5. Most importantly, check whether or not SDTI performed its annual safety audits in accordance with written checklists by personnel technically qualified and independent from the first line of supervision responsible for the performance of the activity being audited.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed the SDTI Safety Manager in charge of the Annual Internal Safety Audit Program. Staff reviewed 2006-2009 internal safety audit records and letters:

1. SDTI Internal Safety Audit Tracking Report dated 6/23/09
 - a. 2 items have been closed
 - b. 3 items remain open as follows:
 - i. SANDAG implement corrective action plan/noted in Triennial Audit
 - ii. SANDAG create sign-off sheet/contractor safety training
 - iii. SANDAG retain sign-off sheets for review by SDTI staff
2. 2006 Internal Safety Audit Report
 - a. Letter of Approval from CPUC (J. Bigornia) 3/28/07
 - b. Letter of Submittal from SDTI (N. Dock) 2/15/07
 - c. Letter "CPUC 2006 Triennial Safety Audit and SDTI 2006 Internal Safety Audit (ISA) Report Recommendations" dated 2/3/09 which advises SANDAG of 3 ISA open items

- d. Master Audit Schedule 2006 (completed 7 of 24)
 - e. Randomly selected Checklist No. 7 Internal Safety Audit Program; 12/29/06 – Auditors: Fred Kroner (SDTI Superintendent of Transportation) and J. Bigornia (CPUC)
 - i. No recommendations
3. 2007 Internal Safety Audit Report
- a. Letter of Approval from CPUC (N. Takahara) 11/25/08
 - b. Letter of Submittal from SDTI (P. Tereschuck) 2/14/08
 - c. Master Audit Schedule 2007 (completed 3 of 21)
 - d. Randomly selected Checklist No. 4 Roadway Worker Program Plan and Hy-Rail Training; 12/07/07 – Auditors Nancy Dock (System Safety Manager)
 - i. Finding - Materials are current with SDTI's operating system and incorporate FRA rules and regulations. The course procedures, rules and SOPs reflect the operating characteristics of the present system. Other departments referenced on certain SOPs for distribution have received the current copy.
 - ii. Recommendation for formatting on PowerPoint for classroom presentation is the following: Roadway Worker/Hy-Rail, LRV Limit and Flagger Training.
4. 2008 Internal Safety Audit Report
- a. Letter of Submittal from SDTI (W. Terry) 2/14/09
 - b. Letter of Approval from CPUC (G. Gregory) 2/24/09
 - c. Master Audit Schedule 2008 contains inconsistencies (completed 5 of 21)
 - d. Randomly selected Checklist No. 2 Safety Data Acquisition/Analysis; 11/21/08 – Auditors Noel Takahara (CPUC) and Joey Bigornia (CPUC)
 - i. Finding - SDTI Safety Committee Meeting minutes for the 2007-2008 calendar year maintained by Safety Department was reviewed.
 - ii. No recommendations

Findings:

The information in the 2007 and 2008 Safety Audit Schedules identifying which SSPP safety elements were covered was inconsistent with each other.

Comments:

Staff suggests that SDTI include the elements or tasks addressed in the checklists contained within the Master Audit Schedule.

Recommendations:

SDTI should revise the Internal Safety Review schedule to ensure that all 21 SSPP safety elements are completed within a 3 year period in accordance with GO 164-D Section 5.2.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	11	Training & Certification Program for Rail Employees	
Date of Review	June 24, 2009	Department	Safety
Reviewer	Raed Dwairi	Persons Contacted	Dave Jensen – Training Supervisor Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Sections 5.1.4, 5.2.1, 5.3.1, 5.3.2.
2. G.O. 143-B Section 13.03

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Training & Certification Program for Rail Employees

Interview SDTI representatives in charge of rail training & certification and review program documentation by randomly selecting three employees of each eligible classification, to determine if all recertification requirements have been met during the last three years. Special attention should be given to the annual recertification requirement & Roadway Worker Program qualification for Maintenance of Way and Track employees.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

1. Staff interviewed the Assistant Superintendent of LRV Maintenance, the Assistant Superintendent of Wayside Maintenance, and the Training Supervisor-Rail with regard to the training & certification programs.
2. Staff randomly selected the names of employees of each eligible classification from each department and asked to see their training and certification records prepared during the last three years.

Findings:

Staff determined the following:

1. SDTI Training Department is responsible for all aspects of training in the Transportation Department and interdepartmental training for on-track and Roadway Worker Protection (RWP) qualifications. The department develops programs and conducts classroom & field training for a wide variety of classifications and is responsible for instructional activities for

Transportation Supervisors, Train Operators, Maintenance of Way (MOW), and LRV Maintenance employees as well as Flagperson/Switch Tenders.

2. SDTI Training Department assesses related needs for new employee initial instruction, follow-up training and recertification.
3. Training Department recertification training includes defensive driving, signal compliance, and Roadway Worker Protection.
4. Train operators and Line Supervisors selected for Staff review received recertification training which included both classroom and field training that comprised the 440-hour training program, the 24-hour recertification, and 16 hour class for supervision.
5. All MOW employees selected (11262, 11622, & 98867) met the required RWP and High Rail Operation Training. Records were organized and easily showed when an employee is no longer working or has retired.
6. Track employees selected (10509, 10220, & 85606) met the required RWP and High Rail Operation Training.
7. All three employees selected at the LRV Maintenance Department from the Electro mechanics classification (Linemen & Assistant Linemen) were current on their Yard Recertification. The records included a legend easily identifying when employees needs certification, have expired yard certification, off duty due to injury, or are current on their certification.
8. All three employees selected at the LRV Maintenance Department from the Electro Mechanics classification (Linemen, Assistant Linemen) were current on their Forklift Certification.
9. No exceptions were noted by staff.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

Checklist	12	Facilities & Right-of-Way (ROW) Maintenance	
Date of Review	June 24, 2009	Department	Facilities / Wayside
Reviewers	Jimmy Xia	Persons Contacted	Vance Williams – Facilities Manager Fred Byle – Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 4.2
2. G.O. 143-B Section 9.03-Installation of Curbs, Fences, & Barriers; Section 9.12-Clearing Vegetation
3. SDTI Station Maintenance Checklists

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Facilities & Right-of-Way (ROW) Maintenance

Interview the SDTI representative(s) in charge of the facilities & right-of-way maintenance, review records for the past 3 years, and conduct field observations to determine whether or not:

1. SDTI installed and maintained fences or barriers along sections of its separate ROW when there is a likelihood that motor vehicles or pedestrians may leave the traveled way of any nearby street or highway and encroach onto mainline track.
2. SDTI cleared its ROW of all vegetation that would constitute a fire hazard, obstruct a vehicle or train operator’s visibility of signs, signals, or the track ahead, and obstruct emergency walkways.
3. SDTI maintained its passenger stations at the required frequencies and corrected noted defects to safety-related equipment in a timely manner.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed the SDTI representatives in charge of the facilities and right-of-way (ROW) maintenance, reviewed the appropriate records for the past 3 years, and conducted field observations.

Findings:

ROW Fencing Maintenance:

1. SDTI maintains the fencing along the ROW.
2. SDTI doesn't have a formal program or Standard Operating Procedure (SOP) for ROW fencing inspection and maintenance due to lack of personnel for such a program; therefore SDTI does not inspect the fencing regularly.
3. SDTI repairs damaged ROW fencing on an as needed basis whenever SDTI staff identifies there is a fencing issue during their normal course of work.
4. SDTI's ROW fencing is predominately chain-link type. SDTI has iron-rod fencing at some of its stations as well.
5. SDTI's Train Operators (T/O) and track workers can report fencing issues to Line Supervisors. SDTI Facilities / Wayside Department will repair the fencing in a timely manner. If the fencing has major damage, SDTI's fencing contractor performs repairs.
6. SDTI's fence maintenance documents are the contractor repair invoices and fence repair works completion.
7. SDTI's Maintenance Superintendent showed staff several recent invoices.

Vegetation Control:

1. SDTI's contractor performs vegetation control in the ROW on an annual basis consisting of spraying and trimming vegetation.
2. SDTI's Maintenance Superintendent showed staff the invoices for the following:
 - a. Vegetation control program for years 2006, 2007, and 2008 in which SDTI contracted with Allied Weed Control.
 - b. Vegetation control program for 2009 is contracted to DeAngelo Brothers Inc.
3. SDTI uses its own landscape crew to clear vegetation and trim trees along its ROWs as needed.
4. SDTI uses contractors for tree trimming around power lines. If the overgrown branches of trees next to the tracks are not close to the power lines, the SDTI's landscape crew will do the tree trimming.
5. SDTI employs five personnel for landscaping work. They are responsible for fencing repair, maintenance of landscaping, and ROW vegetation control. Manpower is an issue. Recently, SDTI stopped weed trimming along its ROWs due to budget / man power issues. Currently, SDTI removes the weeds along its ROWs by spraying them twice a year.
6. When SDTI track inspectors conduct biweekly inspections they look for vegetation problems along the ROW according to FRA Part 213 – Track Safety Standards, Section 213.37 – Vegetation. If a track inspector finds a vegetation problem on the ROW, the inspector will enter the FRA non compliance item, specific location of the non-compliance, and specific details in the track

inspection form.

Maintenance of Passenger Stations:

1. SDTI inspects all the passenger station on a daily and monthly basis.
2. SDTI has a SOP for facilities maintenance with an effective date of 1/27/06 that is comprised of several SOPs including the Daily Station Maintenance Procedures (SOP # E-7001), Weekly Station Maintenance Procedures (SOP # E-7002), Monthly Station Maintenance Procedures (SOP # E-7003), Annual Preventive Maintenance Procedures for Stations and Facilities (SOP # E-7004), Station Washing, Sandblasting, Spray Painting, and Other Power Equipment Procedures (SOP # E-7005), and Daily Station Building and Grounds Maintenance Procedures (SOP # E-7006), all of which are dated 8/1/02.

Staff reviewed the daily Station Evaluation Reports dated May 2007 to June 23, 2009 for all LRV Stations on SDTI lines. Staff reviewed monthly reports for facility inspections for all LRV lines dated May 2007 to May 2009 that summarized corrective actions SDTI implemented for the LRV stations.

3. **Mission Valley Line:** All daily Station Evaluation Reports dated May 2007 to June 23, 2009 were completed by SDTI staff as required, however, the daily Station Evaluation Report for 6/30/07 could not be found by staff. No other exceptions were noted by staff.
4. **East Line:** All daily Station Evaluation Reports dated May 2007 to June 23, 2009 were completed by SDTI staff as required, however, the daily Station Evaluation Reports for 9/10/07 and 7/19/08 could not be found by staff. No other exceptions were noted by staff.
5. **South Line:** All daily Station Evaluation Reports dated May 2007 to June 23, 2009 were completed by SDTI staff as required, however, the daily Station Evaluation Reports for 3/11/08, 12/23/08, 2/6/09, 2/7/09, and 6/15/09 could not be found by staff. No other exceptions were noted by staff.
6. **Metro Line:** All daily Station Evaluation Reports dated May 2007 to June 23, 2009 were completed by SDTI staff as required. No exceptions were noted by staff.
7. All monthly reports for facility inspections for all the LRV lines dated May 2007 to May 2009 were completed by SDTI staff as required, however, the monthly reports for facility inspection for June, July, and August of 2007 could not be found by staff.
8. The SDTI Facilities Manager stated that the missing reports mentioned above are somewhere in the office in the Facilities Department building.
9. SDTI maintained its passenger stations at the required frequencies and corrected the defects that were documented on all of the daily Station Evaluation Reports dated May 2007 to June 23, 2009 in a timely manner.

Findings from Field Observations:

Staff inspected the ROW fencing along the Blue Line, Green Line, and Orange Line and found the following.

Blue Line:

1. Although the ROW fencing appeared to be well-maintained in general, some problems with fencing along this line were observed by staff as mentioned below.
2. Fencing on the southbound to the right of the southbound track for a parking lot just prior to Harborside Station was slanted toward the trackway.
3. Fencing on the southbound to the right of the southbound track near an open field area prior to 8th Street Station was collapsed.
4. Silver fencing on the southbound to the right of the southbound track was collapsed prior to Palomar Street Station.
5. There was a hole in the fence southbound track next to the red benches at Palomar Street Station.
6. Fencing and railing was damaged on the northbound track next to a parking lot just past San Ysidro Transit Center Station.
7. Some fencing was bent on the northbound track next to an open field between San Ysidro Transit Center and Beyer Blvd Station.
8. Some ROW fencing at the following locations were bent:
 - a. On the southbound track past Bayfront/E Street Station next to a freeway near an area with trees
 - b. On the southbound track past Iris Avenue Station,
 - c. On the northbound track near a parking lot just prior to Iris Avenue Station.
9. ROW fencing at the following locations was bent:
 - a. On the southbound track between 24th Street and Bayfront/E Street Stations,
 - b. On the northbound track next to an open field between Iris Avenue and Palm Avenue Stations,
 - c. On the northbound track between Palomar Street and H Street Stations prior to the signal labeled "817",
 - d. On the northbound track at the north end of Harborside Station.

Green Line:

1. The ROW fencing appeared to be well-maintained.

2. Fencing was bent on the southbound track past milepost (MP) 18.00 prior to Arnele Avenue Station.
3. Fencing was collapsed on the westbound track on an overpass next to a freeway prior to Grantville Station.
4. Some barrier nets on fencing were damaged on the westbound track prior to MP 4.50.
5. Some ROW fencing at the following locations were bent:
 - a. On the southbound track prior to Mission Gorge Road crossing before Gillespie Field Station,
 - b. On the southbound track past El Cajon Transit Center Station prior to MP 16.25,
 - c. On the southbound track past Amaya Drive Station prior to MP 16.00.

Orange Line:

1. The ROW fencing appeared to be well-maintained.
2. Fencing was torn and bent on the eastbound track between Euclid Avenue and Encanto/62nd St. Stations.
3. Fencing was bent on the westbound track between Encanto/62nd St. and Euclid Avenue Stations.
4. Fencing was almost collapsed on the westbound track prior to Euclid Avenue Station.

Staff inspected the ROW along the Blue Line, Green Line, and Orange Line and found the following.

Blue Line:

1. The ROW appeared to be well-maintained.
2. On the sidewalk to the right of the southbound track at County Center/Little Italy Station, there is a tree with overgrown branches that almost touch the OCS (Overhead Contact System) wire on the southbound end.
3. Minor vegetation was observed by staff at the following areas:
 - a. Along the southbound trackway before Imperial Ave crossing,
 - b. Next to the northbound track prior to J Street crossing,
 - c. Along the southbound trackway just past Middletown Station.
4. Moderate amounts of trash were observed by staff just north of San Ysidro Transit Center Station.
5. A tree with overgrown branches was observed by staff to the right of the northbound track just prior to 8th Street Station.
6. Moderate vegetation was observed by staff on the ground to the right of the northbound track

between Harborside and Barrio Logan Stations.

7. To the right of the northbound track prior to City College Station there are trees on concrete islands that obstruct a T/O's visibility of the traffic signals on the corridor between J Street and Broadway Street crossings from a distance.
8. To the right of the westbound track past Fifth Avenue Station between 5th Ave and 2nd Ave crossings there are trees on the sidewalk that obstruct a T/O's visibility of the traffic signals along this corridor from a distance.
9. To the right of the eastbound track trees were observed between Fifth Avenue Station and 8th Avenue crossing that obstruct a T/O's visibility of the traffic signals along this corridor from a distance.
10. Some vegetation was observed by staff at the following areas:
 - a. To the right of the northbound track past Santa Fe Depot Station,
 - b. On the whole barrier to the right of the northbound track past County Center/Little Italy Station around the signal labeled "0045",
 - c. On the ground on an overpass between County Center/Little Italy and Middletown Stations,
 - d. To the right of the northbound track on the ground past Washington St. Station prior to a highway overpass,
 - e. Along the ROW fencing to the right of the southbound track past Middletown Station,
 - f. On a wall to the right of the southbound track between Middletown and County Center/Little Italy Stations,
 - g. To the right of the southbound track between Beyer Blvd. and San Ysidro Transit Center Stations prior to a pole labeled "15".
11. Vegetation was observed by staff on a wall barrier to the right of the northbound track both prior to and past Middletown Station.
12. The ROW was cleared of all vegetation that would interfere with employees performing normal trackside duties or obstruct emergency walkways.

Green Line:

1. Some vegetation was observed by staff at the following areas:
 - a. To the right of the eastbound track over the edge of an overpass prior to the signal labeled "M414",
 - b. Along the ROW fencing to the right of the eastbound track prior to MP 15.00,
 - c. To the right of the northbound track prior to MP 16.25 and around MP 16.50,
 - d. Along the right side of the northbound track between MP 20 and Santee Town Center

Station,

- e. To the right of the southbound track past MP 18 prior to Arnele Avenue Station,
 - f. To the right of the southbound track past MP 17.00 prior to El Cajon Transit Center Station,
 - g. To the right of the westbound track past Hazard Center Station.
2. Staff observed some overgrown branches of trees that reach over the edge of an overpass to the right of the eastbound track prior to MP 4.75.
 3. Minor vegetation was observed by staff at the following areas:
 - a. Along the ROW fencing to the right of the eastbound track between MP 4.75 and MP 5.50,
 - b. To the right of the northbound track past El Cajon Transit Center Station prior to the signal labeled "E28RA",
 - c. Along the northbound trackway past Gillespie Field Station prior to MP 20.
 4. Staff observed a few long tree branches that reach over the edge of an overpass to the right of the eastbound track past Fashion Valley Transit Center Station prior to MP 6.50.
 5. Vegetation was observed by staff at the following areas:
 - a. To the right of the eastbound track past MP 6.50 prior to Hazard Center Station,
 - b. On a barrier to the right of the eastbound track prior to an overpass past Hazard Center Station,
 - c. Along the ROW fencing to the right of the eastbound track prior to Alvarado Medical Center Station,
 - d. To the right of the eastbound track past Alvarado Medical Center Station prior to MP 14.00,
 - e. To the right of the northbound track between Grossmont Transit Center and Amaya Drive Stations,
 - f. To the right of the westbound track past MP 15.75 prior to the signal labeled "E20LA".
 6. Staff observed that trees along Mission Valley Center Station have decreased the visibility of the electronic Station Identification Information Signs at the station.
 7. Staff observed a few long tree branches that reach over the barrier to the right of the eastbound track prior to MP 7.50.
 8. Many tree branches were observed by staff next to the eastbound track that touch the right side of a train prior to MP 8.50.
 9. Moderate vegetation was observed by staff along the ROW fencing to the right of the eastbound track just past Fenton Parkway Station.
 10. Staff observed a few tree branches that almost reach to the right side of a train through the ROW fencing to the right of the eastbound track past Qualcomm Stadium Station.
 11. Staff observed some long tree branches that reach over the edge of an overpass to the right of the eastbound track past the tunnel exit past SDSU Transit Center Station. Also, some long tree

- branches were observed by staff to the right of the westbound track past the tunnel exit in the westbound direction past the same station.
12. Some trees with overgrown branches were observed by staff to the right of the eastbound track prior to Grossmont Transit Center Station.
 13. Staff observed that a tree to the right of the southbound track in front of the signal labeled "E1473" prior to Amaya Drive Station appeared to obstruct a T/O's visibility of that signal from a distance.
 14. Some long tree branches were observed by staff at the following areas:
 - a. To the right of the westbound track around MP 14.75 prior to 70th Street Station,
 - b. Along the right side of the westbound track just past Fenton Parkway Station,
 - c. To the right of the westbound track along the right side of an overpass between Morena/Linda Vista and Old Town Transit Center Stations.
 15. A tree's branches to the right of the westbound track almost touch the right side of passing trains just past the Mission Valley Center Station.
 16. The ROW appeared to be cleared of all vegetation that would interfere with employees performing normal trackside duties or obstruct emergency walkways.

Orange Line:

1. Minor vegetation was observed by staff at the following areas
 - a. Along the eastbound trackway prior to 32nd St crossing,
 - b. Along the northbound trackway prior to Encanto/62nd St. Station,
 - c. Along the ROW between the northbound and southbound tracks past MP 9.00 prior to the signal labeled "E954",
 - d. On the ground near the right edge of the westbound track prior to a pole labeled "15" prior to 32nd & Commercial Station.
2. Some vegetation was observed by staff at the following areas:
 - a. Very close to the right side of the eastbound track before MP 4.50,
 - b. Just to the right of the eastbound track between 47th Street and Euclid Avenue Stations,
 - c. Along the ROW fencing to the right of the westbound track between Encanto/62nd St. and Euclid Avenue Stations.
3. Moderate debris was observed by staff on the wayside to the right of the northbound track past Spring Street Station.
4. On the sidewalk to the right of the westbound track at 25th & Commercial Station a tree with overgrown branches almost touches the OCS wire on the westbound end.
5. The ROW appeared to be cleared of all vegetation that would obstruct T/Os' visibility, interfere with employees in performing normal trackside duties, or obstruct emergency walkways.

Recommendations:

1. SDTI should repair all damaged fencing on the SDTI right of way, in accordance with GO-143B Section 9.03.
2. SDTI should clear vegetation on the right-of-way in accordance with GO-143B Section 9.12

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC.**

Checklist	13	Structural/Concrete Inspections & Maintenance –Overpasses, Bridges and Tunnels	
Date of Review	June 25, 2009	Department	Wayside
Reviewers	Susan Feyl	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.3.3
2. G.O. 143-B Section 14

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Structural/Concrete Inspections & Maintenance – Overpasses, Bridges, and Tunnels

Interview the SDTI representative in charge of structural inspections & maintenance and review records prepared during the past 3 years to determine whether or not:

1. Procedures currently exist for the structural inspections of bridges and other concrete structures such as overpasses and tunnels.
2. SDTI performed structural inspections at the required frequencies and according to accepted standards and taken remedial actions in a timely manner.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed the SDTI representative and discovered that a subcontractor, Ty Lin, was currently inspecting SDTI bridges. The subcontractor’s inspection report is expected to be completed within the current fiscal year. Staff will follow up when the report is available.

Findings:

1. Documentation was not available to review to confirm bridge inspections were being performed every five years as required by the SDTI SSPP Section 5.3.3.
2. This is the first year which will provide documentation for any structural inspections. The Ty Lin study is only funded for one year.

Recommendations:

SDTI should perform bridge inspections every five years as required by the SDTI SSPP Section 5.3.3.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC.**

Checklist	14	Gated Crossings Equipment Maintenance	
Date of Review	June 23, 2009	Department	Wayside
Reviewers	Vincent Kwong	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.3.3
2. FRA Part 234 - Grade Crossing Standards
3. GO 143-B, Section 14.05
4. SDTI SOP SIG-2001 Grade Crossing Tests and Standard dated 06/18/03

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Gated Crossings Equipment Maintenance

Randomly select a minimum of five crossings on each line (Blue, Green, and Orange) and review the records of completed gated grade crossings prepared during the past three years to determine whether or not:

1. SDTI performed inspections at the required frequencies as specified in the reference criteria
2. SDTI documented the inspections properly
3. SDTI documented & corrected noted defects in a timely manner

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI Superintendent of Wayside Maintenance regarding the SDTI grade crossing device maintenance program.

Staff also selected the following five crossings on each line (Blue, Green, and Orange) and reviewed the monthly, quarterly, and annual crossing warning system test and inspections (GC-Form 1003). The Annual inspections covered tasks of both Quarterly and Monthly checklists, Quarterly inspections covered tasks of Monthly checklists as well. The inspections checked for the exact bus voltages as they were specifically calibrated for each crossing and the timing sequences were also set to meet a minimum of 20 seconds.

Findings

1. Blue Line

- a. Sigsbee St – January 7, 2008 thru June 11, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (6) Wayside Trouble Reports were all resolved in a timely manner
 - iii. 2009 – (2) Wayside Trouble Reports were all resolved in a timely manner
- b. Schley St – January 9, 2008 thru May 12, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (9) Wayside Trouble Reports were all resolved by SDTI staff in a timely manner
 - iii. 2009 – (15) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- c. F Street – January 24, 2008 thru May 13, 2009 Monthly, Quarterly, and Annual records.
 - i. An annual inspection was performed by SDTI staff on January 22, 2009. SDTI performed a quarterly inspection on February, 18, 2009 while only monthly inspections were carried out thereafter, March 6, 2009, April 10, 2009, and May 13, 2009.*
 - ii. 2008 – (8) Wayside Trouble Reports were all resolved by SDTI staff in a timely manner
 - iii. 2009 – (8) Wayside Trouble Report – all resolved by SDTI in a timely manner
- d. H Street – January 29, 2008 thru May 25, 2009 Monthly, Quarterly, and Annual records.
 - i. SDTI performed an annual inspection on January 31, 2009. SDTI performed a quarterly inspection staff on February, 26, 2009 while only monthly inspections were carried out thereafter, March 10, 2009, April 10, 2009, and May 25, 2009.*
 - ii. 2008 – A repeated problem regarding the N/C on B-14 and N-14 Grounds/Cross Battery appeared in the following inspections:*)
 1. May 21, 2008 - N/C on N-14 Grounds/Cross Battery
 2. July 17, 2008 - N/C on B-14 Grounds/Cross Battery
 3. August 25, 2008 - N/C on B-14 Grounds/Cross Battery
 4. October 28, 2008 - N/C on N-14 Grounds/Cross Battery

- iii. 2009 – (8) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- e. 27th Street – January 23, 2008 thru June 10, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (0) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (2) Wayside Trouble Report – all resolved by SDTI staff in a timely manner

2. Green Line

- a. Cuyamaca Cut-In – January 2, 2008 thru June 1, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (3) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (4) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- b. Marshall Ave – January 24, 2008 thru June 1, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (4) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (5) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- c. Vernon Avenue – January 3, 2008 thru June 2, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (1) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (2) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- d. Billy Mitchell Dr. – January 2, 2008 thru June 1, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (2) Wayside Trouble Report – all resolved by SDTI staff in a timely manner

manner

- iii. 2009 – (2) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - e. Hazard Center Drive West – January 18, 2008 thru June 4, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – A repeated problem regarding the N/C XLOSR nearside appeared in the following inspections:*
 - 1. March 11, 2008 - N/C on nearside
 - 2. June 8, 2008 – N/C on nearside
 - 3. September 4, 2008 - N/C XLOSR on nearside – No activation
 - 4. December 8, 2008 - N/C XLOSR on nearside
 - iii. 2009 – (1) Wayside Trouble Report – all resolved in a timely manner
 - f. Hazard Center Drive East – January 2008 (specific inspection date missing) thru June 4, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (0) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (1) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - g. Friars Road – January 13, 2008 thru June 4, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (9) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (6) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
3. Orange Line
- a. Massachusetts Ave – January 11, 2008 thru June 10, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (5) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (5) Wayside Trouble Report – all resolved by SDTI staff in a timely manner

- b. Central Ave – January 17, 2008 thru June 5, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (0) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (5) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- c. 60th Street – January 8, 2008 thru June 11, 2009 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (3) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (1) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- d. Merlin Dr. – January 8, 2008 thru June 12, 09 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (2) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (6) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
- e. Horton – January 2, 2008 thru June 12, 09 Monthly, Quarterly, and Annual records.
 - i. All met the scheduled requirements
 - ii. 2008 – (0) Wayside Trouble Report – all resolved by SDTI staff in a timely manner
 - iii. 2009 – (4) Wayside Trouble Report – all resolved by SDTI staff in a timely manner

1. The F and G Street Quarterly inspections in 2009 did not meet scheduled requirements as required by SDTI SSPP Section 5.3.3 and SDTI SOP SIG-2001.
2. The H Street Monthly inspections from May-October 2008 indicate a “Needs Correction.” No remedial action or corrective action was indicated by SDTI staff as required by SDTI SSPP Section 5.3.3 and SDTI SOP SIG-2001.
3. The Hazard Center Dr. West inspections from March-December 2008 indicate a “Needs Correction.” No remedial action or corrective action was indicated by SDTI staff to address the issue as required by the SDTI SSPP Section 5.3.3 and SDTI SOP SIG-2001.

Recommendations:

1. SDTI should review its crossing equipment test and inspection schedule for monthly, quarterly, and annual inspections and revise as necessary to meet frequency standards.
2. SDTI should address issues identified in crossing equipment inspection forms with remedial action or corrective actions required and properly document them.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	15	Traction Power Maintenance	
Date of Review	June 23, 2009	Department	Wayside
Reviewers	Colleen Sullivan	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.3.3
2. GO 143-B, Section 14
3. SDTI SOP CAT-101.0 Annual Catenary Inspection Procedure, dated 1/07/05
4. SDTI SOP SUB-STA-2.0 Substation Maintenance Inspection Procedure, dated 4/30/05

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Traction Power Maintenance – OCS, OCS Sleds, Substation, and Substation Batteries

Interview the SDTI representative in charge of traction power maintenance and review relevant documentation prepared during the last three years to determine whether or not:

1. SDTI inspected traction power elements and their components per the required frequencies on each line of the system.
2. SDTI documented the inspections properly.
3. SDTI corrected noted defects in a timely manner and tracked corrections to closure.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff reviewed the SDTI Signal System Standard Operating Procedures (SOP) – Maintenance of Way and Power. Staff reviewed catenary maintenance and inspection reports and repair inspection reports for the Orange Line, Blue Line, and Green Line for the years 2006-2009. Staff inspected the records of these substations: Sweetwater Traction Power Substation (TPSS 7), Grantville (TPSS SSMP), and Pacifica (TPSS 20).

Findings:

1. Sweetwater (TPSS 7), Grantville (TPSS SSMP), and Pacifica (TPSS 20) maintenance records

dated 2006-2009 were reviewed by staff.

2. The Wayside Department performs Quarterly TPSS Inspections based on the TPSS manufacturer's recommendation.
3. Problems identified during the Quarterly Inspection result in a Trouble Ticket being generated.
4. For minor maintenance activities that do not require considerable amount of resource, the maintenance activity is recorded by SDTI staff on the Quarterly Inspection Form and no Trouble Ticket is generated.
5. Trouble Ticket can also be generated by a trouble report.
6. Trouble reports are generated normally by the Central Control who monitors the TPSS status remotely. Also, any Wayside lineman or a train operator who notices any signs of TPSS trouble notifies the Central Control to generate the trouble report.
7. Most of the Trouble Ticket items are addressed by SDTI staff immediately (within 24 hours).
8. Some Trouble Ticket items, those that require replacement parts that need to be ordered, may take a longer time to address the issue.
9. Trouble Ticket folders reviewed by Staff contained only the "closed" Trouble Tickets.
10. "Open" Trouble Tickets are tracked manually by the Line Supervisor.
11. In the 2006 SDTI Triennial Audit, CPUC staff recommended that SDTI keep the Wayside Trouble Report (i.e. Trouble Ticket) in the same file as the Catenary Maintenance and Inspection Report.
12. SDTI Wayside management said this was an excellent recommendation by CPUC staff. SDTI has been following this practice since 2006. SDTI developed a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms. This process has proven to be much more efficient and less troublesome.
13. Staff did not find any deficiencies in the records that were reviewed.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	16	Wayside Scheduled Maintenance – SDSU	
Date of Review	June 25, 2009	Department	Wayside Department
Reviewers	Susan Feyl	Persons Contacted	Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.3.3
2. G.O. 143-B Section 14
3. Emergency Ventilation and Jet Fan SOPs
4. Sump Pumps Operation Verification Checklists
5. Emergency Trip System SOP.

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Wayside Scheduled Maintenance – SDSU

Interview the SDTI representative in charge of wayside maintenance at SDSU and review documentation prepared during the last three years to determine whether or not:

1. SDTI performed emergency ventilation and jet fan maintenance at SDSU according to a standard operating procedure which includes inspection checklists and established frequencies.
2. SDTI verified sump pump operation in rainy seasons via checklists completed by its wayside personnel.
3. SDTI tested its emergency phones according to criteria established in its Emergency Trip System SOP.
4. SDTI conducted and documented the required preventive maintenance at the required frequencies for its emergency ventilation fans, wet standpipes, under car deluge, and emergency lighting on walkways and corrected any noted defects in a timely manner.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities

Staff interviewed the SDTI representative and discovered the following.

Findings:

1. SDTI performs emergency ventilation and jet fan maintenance at SDSU annually instead of monthly as stated in SDTI SSPP Section 5.3.3.
2. SDTI verifies sump pump operation in rainy seasons biannually instead of monthly as stated in SDTI SSPP Section 5.3.3.
3. SDTI tests its emergency phones annually instead of monthly as stated in SDTI SSPP Section 5.3.3.
4. SDTI does not have a preventative maintenance plan similar to a vehicle preventive maintenance plan that can be done on a dry standpipe, under car deluge (a pipe), emergency lighting (which are continuously on) and fans.

Recommendations:

SDTI should conduct inspections in accordance with SSPP Section 5.3.3.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	17	Track & Switch Maintenance (Track Bonds, Street Switches, etc.)	
Date of Review	June 24, 2009	Department	Wayside Department
Reviewers	Howard Huie	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.3.3
2. G.O. 143-B Section 14
3. FRA Part 213 for Track
4. SOP TK-1000.0 Track Department Rail Reliability Standards
5. SOP TRK-301.2 Track Inspection

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Track & Switch Maintenance (Track Bonds, Street Switches, etc.)

Interview the SDTI representative in charge of the track and switch maintenance and randomly select at least five items of each track component and review documentation prepared during the last three years to determine whether or not:

1. SDTI performed inspections at the required frequencies as specified in the reference criteria
2. SDTI documented the inspections
3. SDTI corrected noted defects in a timely manner

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

1. Staff randomly selected five sections, 102, 103, 105, 400, and 500, and reviewed records dated 2006-2008 for all defects and maintenance noted. All street switches outside of the maintenance yard are inspected by SDTI staff twice a week. All yard switches are inspected by SDTI staff twice a month.

Findings:

1. Staff found SDTI to inspect all track and switches within the prescribed time as specified by the FRA, CPUC and specified in SDTI's SOPs.
2. SDTI documents all track and switch inspections on a Track/Switch Inspection sheet, which is categorized by Track Section and Date.
3. Staff found no more than five FRA reportable maintenance defects over a three year interval. Staff found all defects were repaired by SDTI within a five day interval. Staff also found non FRA reportable defects in the inspection documentation. Staff found that all repairs were fixed within three days of the reported defect but all were repaired within the 30 day allowable time frame.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	18	Signal & Vital Relay Maintenance	
Date of Review	June 24, 2009	Department	Wayside
Reviewers	Howard Huie	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Joe Petito – Assistant Superintendent of Wayside Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.3.3
2. G.O. 143-B Section 14
3. SDTI SOP SIG-2001 Signal System, dated 6/18/03
4. SDTI Signal Tests & Standards Document

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Signal & Vital Relay Maintenance

Interview the SDTI representative in charge of the Signal & Vital Relay Maintenance Program, randomly select at least ten signal and ten vital relays from all lines of the SDTI system, and review documentation prepared during the last three years to determine whether or not:

1. SDTI performed inspections at the required frequencies as specified in the reference criteria.
2. SDTI documented the inspections.
3. SDTI corrected noted defects or replaced vital relays that failed tests in a timely manner.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

SDTI signal relays are inspected and tested once every four years and the vital relays are inspected and tested once every two years. Staff randomly chose one signal case from each territory which contained a minimum of ten Signal Relays. Staff found not all signal cases contained at least ten Vital Relays while one territory did not contain any Vital Relays.

Staff chose the following cases for inspection years 2006 and 2007, Case Number – 0336RC, E1817, B050, BD4.

Findings:

1. The following table lists the four randomly chosen cases with the respective ten Signal Relay and Vital Relay status.

Case Number 0336RC

Inspection Date: 4/19/2006

Signal Relay

Relay Nomenclature	Relay Type	Serial Number
02LARPBSR	150B	B419S231
02LAHR	150B	B419S296
02LAHR	150B	B419S185
02LAHDPR	150B	B409S192
02LARHR	150B	B419S226
02LAASR	150B	B419S163
02LAASPR	150B	B419S248
02LARBTER	150B	B419S228
0342ATPR	150B	B4S94149
02LBPBSR	150B	B419S217

Inspection Date: 7/17/2007

Vital Relay

Equipment Type	Serial Number
0287TR	B3995137
0328TR	B3995125
0335TR	B3995144
0342TR	B3995128
01TR	B3995129
03TR	B3995134

Signal Relays Not Due For Inspection Till 2010

Vital Relays Are In Cycle And Are Currently Being Tested

Case Number E1817

Inspection Date: 5/5/2006

Signal Relay

Relay Nomenclature	Relay Type	Serial Number
E30LTPR	PN-150B	B2793243
E28RATPR	PN-150B	B2793240
E1845TPR	PN-150B	B2783199
E31TSR	PN-150B	B2793193
E31TSPR	PN-150B	B2793242
E31TSPPR	PN-150B	B2793235
E31ATSPR	PN-150B	B2793204
E31ATSPPR	PN-150B	B0693136
E31ATSPPR	PN-150B	B0693141
E30RAAR	PN-150B	B1893185

Inspection Date: 3/25/07

Vital Relay

Equipment Type	Serial Number
E30LTR	B2893107
E28RATR	B2893129
E31TR	B289108
E31ATR	B2893125
E1845TR	B2893110
E30RTR	B2893114
E32LATR	B2893117
E30RATR	B2893127

**Signal Relays Not Due For Inspection Till 2010
Vital Relays Are In Cycle And Are Currently Being
Tested**

Case Number B050

Inspection Date: 4/282006

Signal Relay

Relay Nomenclature	Relay Type	Serial Number
	NAR	P44858

XTR	P44864
XTAR	P44963
SAR	P44962
XR	P44956
XPR	P44959
XGPR	B5195057
XGPPR	B5195055
RRXPR	P44844
SPBSR	P44847

No Vital Relays - Dark Territory

Case Number BD-4

Inspection Date: 8/192006

Signal Relay

Relay Nomenclature	Relay Type	Serial Number
R8TR	PN150BH	1680B16
R8TPR	PN150B	1380510
30RTPR	PN150B	2080650
35ATPPPR	PN150B	1380504
35BTPR	PN258BSR	3580A07
35BTTPR	PN258BSR	2880641
35BTPPPR	PN150B	2080655
595ATPR	PN150B	1380512
595ATPPR	PN150B	2180723
30RCANSR	PN150B	2180662

Inspection Date: 3/25/07

Vital Relay

Equipment Type	Serial Number
S35ATR	1980804
S30RTR	1980803
S35BTR	1980799
S595ATR	1980810

**Signal Relays Not Due For Inspection Till 2010
Vital Relays Are In Cycle And Are Currently Being
Tested**

All randomly selected signal relays are not due for inspection until 2010. All randomly selected vital relays are currently in cycle to be tested. Prior to 2007, SDTI did not have a method to track which signal relays were due for inspection. SDTI currently has a Master Signal/Vital Relay spreadsheet which houses all the data of the last inspection and maintenance dates of all signal and vital relays.

In order to ensure SDTI is currently cycling their Vital Relay inspections, Staff inspected two Signal Cases recently inspected by SDTI inspected in 2009 and compared the inspection result to the previous inspection dates. See the following table for results:

**Case Number M720RC
Vital Relay**

Serial Number	Date of Last Inspection	Date of Current Inspection
99872P011	6/16/2007	3/20/2009
47872P003	6/16/2007	3/20/2009

**Case Number M912RC
Vital Relay**

Serial Number	Date of Last Inspection	Date of Current Inspection
49872P008	6/2/2009	3/25/2009

- SDTI's staff document signal and vital relay inspections on a Signal/Vital Relay inspection sheet then transfer the test results to the Master Signal/Vital Relay spreadsheet. All Signal/Vital Relay inspection sheets are filed in a folder which is tagged and categorized by territory and year of inspection.
- SDTI's Signal and Vital Relay defects, replacements and maintenance are recorded in the hard copy inspection sheets and in the following format:

Equipment Location	Equipment Type	Serial Number	Comment
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M912RC M17TR 49872P208 Failed 3/25/09 - Replaced 3/25/09

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	19	Operations Control Center (OCC)	
Date of Review	June 24, 2009	Department	Transportation
Reviewers	Vincent Kwong	Persons Contacted	Tom Tupta – Superintendent of Transportation Brian Riley – OCC Supervisor Larry Ayers – OCC Supervisor

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.1.1 and Section 5.1.2, 5.1.3

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Operations Control Center

Interview the SDTI representative in charge of Control Center Operations and review supporting documentation prepared during the past 3 years to determine whether or not:

1. SDTI appropriately documented and distributed defects reports, unusual occurrence reports, daily statistical summaries, etc. as required.
2. SDTI updated Operating Clearance Forms on a daily basis and distributed them to its train operators.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed the SDTI Central Control Supervisor and the Superintendent of Transportation on the duties and responsibilities of the Control Center. SDTI personnel also demonstrated to staff the usage of the system database, Ellipse, which keeps files and job cards tracked.

Staff also reviewed the following records from the past three years at the Control Center that contain accurate correlating information.

1. Daily Report (Form 137) – Downtown area is isolated due to joint use
 - a. January 23, 2007
 - b. December 15, 2008
 - c. June 23, 2009
2. LRV Cut From Service Report (Form 144)
 - a. Week of January 21-27, 2007
 - b. Week of December 14-20, 2008

- c. Week of June 21-27, 2009
3. Unusual Occurrences Report (Form 10201) – Documents major events, significant schedule delays, scheduled trips, operated trips, late trips, and annulled trips
 - a. April 6, 2007 – Orange Line
 - b. March 14, 2008 – Orange Line
 - c. June 22, 2009 – Green Line (Item 1 correlates to Job Card Order Number #00595643/001 for timely remedial action.)
 - d. June 23, 2009 – Blue, Green, and Orange Line
4. Incident Notification Report (Form 138) – Notifications are made to necessary personnel, documentation as necessary includes Preliminary Incident Report and/or Property Damage Report
 - a. August 17, 2007 – Major accident reported
 - b. March 14, 2008 – Major accident reported
5. Train Emergency Brake Applications (Form 141)
 - a. Week of March 9-15, 2008
 - b. Week of June 14-20, 2009
6. Controllers Log (Form 11201) – Documents changes and bulletins for specific and all line operations
 - a. June 23, 2009 – Blue, Green, and Orange Line
 - b. October 24, 2008 – Orange Line
7. Operating Clearance – Train operators receive a newly revised operating clearance sheet at the beginning of the shift with all newly revised information. Sign in sheet requires initials marked to acknowledge that the operator understands the bulletins as well as check out for a SDTI portable radio and equipment.
 - a. April 18, 2007
 - b. April 22, 2008
 - c. June 24, 2009

Findings:

The SDTI Control Center has demonstrated its ability to document and distribute the necessary forms and records as required.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	20	Review of Operating Rules & Procedures	
Date of Review	June 23, 2009	Department	Transportation
Reviewers	Raed Dwairi	Persons Contacted	Tom Tupta – Superintendent of Transportation

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 6.1
2. G.O. 143-B Section 13.02

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Review of Operating Rules & Procedures

Conduct the necessary interviews and review appropriate documentation prepared during the last three years to determine whether or not SDTI reviewed its rulebook on an annual or “as needed” basis and updated it when necessary. Additionally, check if SDTI filed its operating rules with the Commission staff when modifications are introduced to these rules.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed the Superintendent of Transportation and reviewed documentation prepared during the last three years.

Findings:

Staff found the following:

1. SDTI reviewed its operating rulebook and other operating procedures on an as needed basis.
2. SDTI filed its operating rules with the Commission staff as appropriate prior to the Mission Valley East Extension which began revenue service in July 2005.
3. No exceptions were noted by staff

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	21	Hours of Service Records – Safety Sensitive Employees	
Date of Review	June 23, 2009	Department	Transportation
Reviewers	Howard Huie, Jimmy Xia	Persons Contacted	Tom Tupta – Superintendent of Transportation Jennifer O’Connell – Assignments Office Supervisor

REFERENCE CRITERIA

1. CPUC GO 143-B Section 12.04 – Hours of Service

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Hours of Service Records – Safety Sensitive Employees

Randomly selected at least five employees from each safety sensitive employee classification at the Transportation Department and review their hours of service records prepared during a six month interval in the last three years and determine whether or not:

1. The employees selected did not remain on duty for more than 12 consecutive hours over a period of 16-hours noting that initial on duty status may only begin after 8 consecutive hours off duty (clear time).
2. SDTI uses forms that easily and clearly show the times when its safety sensitive employees were on duty (Report Time) and off duty (Clear Time) in order to calculate the number of consecutive hours its safety sensitive employees were off duty prior to returning to duty to ensure compliance with the hours of service requirements in 143-B.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff randomly selected five SDTI employees from each of the three safety sensitive classifications: Yard/Line Supervisors, Controllers, and Train Operators (T/O). Staff reviewed a six month interval from December 1, 2008 to May 31, 2009 to determine if any safety sensitive employees worked more than 12 consecutive hours over a period of 16 hours. CPUC GO143-B Section 12.04 requires a minimum of 8 hours of off duty time before employee is allowed to start another shift. In addition to the six months interval, Staff spot checked additional intervals from June 10, 2007 to July 7, 2007 and from August 12, 2007 to September 8, 2007 for Yard/Line Supervisors and Controllers only.

Findings:

1. Staff found that from the five random Controllers and five random Yard/Line Supervisors chosen, only one Yard/Line Supervisor exceeded the 12 hour limit on January 12, 2009 by an excess of 15 minutes. SDTI Personnel noted that the Yard/Line Supervisor was out at an accident investigation then at a train derailment. After which he was back in the office writing up both reports and was not performing any safety sensitive tasks.

SDTI uses a computer database, Hastus, to track all Train Operators' schedules and hours of service performed. Staff randomly selected five employees and checked the hours of service in Hastus' Employee Details module within the six month interval stated above. Staff did not find any Train Operators exceeding the 12 consecutive hours of service rule specified in GO 143-B Section 12.04.

2. SDTI uses a spreadsheet matrix to track the Yard/Line Supervisors and Controllers. The matrix consists of a weekly schedule broken down by days of the week in columns and by shift hours of the days in rows. Each Yard/Line Supervisor or Controller's name is entered into the time slot of when they are to work. Yard/Line Supervisors and Controllers hours are easily tracked at a glance at the matrix. See example below.

**Transportation Department
Supervision Weekly Schedule
(Schedule #59 - Effective 6/29/09)**

Month	Sun	Mon	Tues	Wed	Thu	Fri	Sat
Date	6/28/09	6/29/09	6/30/09	7/1/09	7/2/09	7/3/09	7/4/09

Yard Supervisors

YSAM	name1	name1	name1	name1	name1		
4:00 A - 12:00P							
Changes							
YSPM		name2	name2	name2	name2	name2	
12:00P - 8:00P							
Changes							
YSGY			name3	name3	name3	name3	name3
8:00P - 4:00P							
Changes							

SDTI uses the Hastus computer program for tracking the Hours of Service (HOS) Records of its Train Operators (T/O). The Hastus Employee Details module details SDTI's T/Os start and end times allowing the number of consecutive hours the T/Os were off duty prior to returning to duty can be easily calculated to ensure compliance with the HOS requirements in GO 143-B.

Recommendations

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	22	Program of Operational Evaluations	
Date of Review	June 17, 2009	Department	Transportation
Reviewers	Don Filippi	Persons Contacted	Tom Tupta – Superintendent of Transportation Fred Kroner – Assistant Superintendent of Transportation

REFERENCE CRITERIA

1. G.O. 143-B Section 13.04
2. 49 CFR 659.19 (m)

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Program of Operational Evaluations

Conduct the necessary interviews and review appropriate records prepared during the last two calendar years to determine whether or not SDTI periodically conducts operational evaluations and inspections to gage the extent of compliance of rail operations employees with its operating rules, special instructions, and other applicable rules & procedures.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities

Staff interviewed the Superintendent and Assistant Superintendent of Transportation regarding SDTI operational testing. The discussion centered on SDTI policies and procedures regarding the SDTI efficiency testing program, discipline program, training program, and recertification program. Staff inspected records from all four programs that were discussed. Records were not readily available at the initial time of review to verify compliance with GO 143-B section 12.02 requiring biennial physicals for operator re-certification. Staff revisited SDTI on 7/9/2009 and found the records were still not organized for verification to GO 143-B section 12.02 compliance. On July 13, 2009 staff verified SDTI compliance to the rule.

Findings:

No exceptions were noted by staff regarding SDTI testing and training records or SDTI testing and training procedures.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	23	Safety Committees	
Date of Review	June 25, 2009	Department	Safety
Reviewers	Claudia Lam	Persons Contacted	Nancy Dock – System Safety Manager

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 7.2

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Safety Committees

Conduct the necessary interviews and review meeting minutes from monthly safety committee meetings prepared during the last three years to determine whether or not:

1. The Safety Committee acted as a communication channel on safety-related matters between employees and upper management and provided a forum to discuss and resolve issues which impact safety.
2. Decisions reached by upper management for possible implementation to safety recommendations made by the Safety Committee were not based only on financial considerations without regard to safety.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities & Findings:

Staff randomly selected San Diego Trolley Safety Meeting minutes from 2007-2009 to review. The safety committee is formed with representatives from the following departments: Safety, LRV Maintenance, Maintenance of Way (MOW), Facilities, Store, Revenue, Security, and Transportation. Committee minutes documented the issues addressed by employees to upper management. Minutes showed that Safety Committee discussed/concluded the resolution and posted the updates on the front page of next minutes. The committee minutes are distributed to upper management personnel and posted on SDTI bulletin boards of different departments accessible to employees.

Staff reviewed meeting minutes dated January 2008. The minutes documented two issues, Taylor Street Crossing, Santee Corridor Signal Sequencing, which both require expenditure of funds; the issues were referred to the appropriate department heads. Task Forces were formed to look into the improvement of both safety issues.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	24	Light Rail Vehicle (LRV) Maintenance	
Date of Review	June 23, 2009	Department	LRV Maintenance
Reviewers	Dain Pankratz	Persons Contacted	Lee Summerlott – Superintendent of LRV Maintenance Andy Goddard Jr. – Assistant Superintendent of LRV Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 5.2.2
2. G.O. 143-B Section 14.04
3. SDTI LRV SOPs Daily & Yearly Inspections, Mileage-Based Inspection Procedures.

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Light Rail Vehicle (LRV) Maintenance

Randomly select five vehicles from each vehicle type in the SDTI fleet and review all applicable maintenance records prepared during a one year period within the last three years to determine whether or not:

1. SDTI performed inspections at the required frequencies as specified in the reference criteria.
2. SDTI properly documented the inspections.
3. SDTI corrected noted defects in a timely manner.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities & Findings:

1. Staff reviewed the LRV maintenance procedures and interviewed the SDTI LRV maintenance managers. For Preventative Maintenance Inspections (PMI) staff noted the following:
 - a. SDTI has approximately 134-LRVs in service. LRVs models include seventy-one U2s, fifty-two SD-100s and eleven S-70s.
 - b. Staff randomly selected records from each LRV model and reviewed 15k, 22.5k and 60k mileage records.
 - c. The records indicate that the scheduled LRV maintenance inspection was performed

by SDTI staff within 5% of the specified mileage

- d. After the LRV was removed from service, SDTI staff performed the inspections in a reasonable time period
2. SDTI maintains electronic documentation and stores hardcopy documentation in binders that are individually labeled for each LRV. SDTI was able to access all records staff requested.
3. Train operators or PMI personnel generate trouble ticket for LRV repairs work-orders. The repair work-orders are corrected by SDTI staff in a responsible time period. Repair items that are not immediately resolved are tracked by SDTI staff and the LRV will remain out-of-service until the work-order is complete.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	25	Drug and Alcohol Policy	
Date of Review	June 23, 2009	Department	Human Resources
Reviewers	Dain Pankratz	Persons Contacted	Mary Jane Greenland – Manager of Human Resources

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 6.1.4
2. 49 CFR Parts 40, 653, 654, 655
3. CPUC GO 143-B, Section 12.03
4. SDTI Drug & Alcohol Policy

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Drug and Alcohol Policy

1. Interview the SDTI representative in charge of the Drug and Alcohol Program and determine whether or not SDTI is in compliance with State and Federal regulations.
2. Review the report from the most recent FTA audit of the SDTI Drug Prevention and Alcohol Misuse Program and the status of any corrective actions resulting from FTA recommendations to determine whether or not recommendations have been implemented.
3. Review the relevant records of employees in safety sensitive positions who tested positive for drugs or alcohol in the past three years to determine, for each employee that tested positive, whether or not:
 - a. The employee(s) was prohibited from performing safety related duties
 - b. The employee(s) returning to active employment after seeking assistance from the Rehabilitation Program signed a "Return to Work Agreement" which requires:
 - i. Passing an alcohol and drug test before returning to work
 - ii. A Substance Abuse Professional must determine that the employee has followed an appropriate rehabilitation program and is capable of returning to duty
 - iii. Submission to at least six drug and alcohol tests within the 12-month period following return to duty.
 - iv. Immediate termination upon failure of any alcohol or drug test or refusal to submit to such testing during this period.

4. Random testing of safety sensitive employees is performed as required without excusing individuals for unacceptable reasons.
5. Safety sensitive employees who have been off duty for more than 90 days have been drug tested before being allowed back to resume their duties.
6. Review the policy for dealing with safety sensitive employees that personally disclose to SDTI supervisors or Human Resources that they are under the influence and unfit for duty.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities & Findings:

1. Staff interviewed SDTI Human Resources Manager to review the programs for random, reasonable suspension, pre-employment, return to service, and post accident drug and alcohol testing. The SDTI drug and alcohol policy is in compliance of state and federal regulations
2. Staff reviewed the FTA annual drug and alcohol management information system (MIS) for calendar years 2006, 2007 and 2008. SDTI random testing met the minimum 10% alcohol and 25% drug testing rate. The previous FTA drug and alcohol audit occurred in January 2009 and the Staff confirmed FTA audit recommendations were addressed by SDTI staff.
3. Staff reviewed random records of SDTI safety sensitive employees and found:
 - A-B) The SDTI drug and alcohol policy suggests 'likely termination' for a positive drug or alcohol test. Between the years 2006-2009, four (4) SDTI employees tested positive during the random drug test. All four employees did not return to work after testing positive, which did not require a Substance abuse professional (SAP), return-to-duty agreement nor monitoring of return-to-duty drug and alcohol testing.
4. SDTI utilizes an onsite drug and alcohol testing clinic. A third party administrator (Drug Testing Network) supplies Human Resources and the onsite clinic the list of random employees to be tested. The clinic is responsible for attaining employees needed for testing. Staff did not find any discrepancies or unacceptable excuses as this system proves to be successful in assuring employees are randomly tested.
5. Staff reviewed the records for employees off duty for more than 90 days and verified negative test results prior to return to service.
6. The SDTI drug and alcohol policy allows the employee to contact the employee assistance program (EAP) for a drug or alcohol problem prior to being selected for drug or alcohol testing. SDTI employees using this program were referred to the SAP and the employee was

placed into a drug and alcohol test schedule.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	26	Calibration of Test Equipment	
Date of Review	June 23, 2009	Department	LRV Maintenance
Reviewers	Howard Huie	Persons Contacted	Lee Summerlott – Superintendent of LRV Maintenance Andy Goddard Jr. – Assistant Superintendent of LRV Maintenance

REFERENCE CRITERIA

1. SDTI Calibration SOP

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Calibration of Test Equipment

Interview SDTI representatives and review calibration records for the last three years, examine equipment storage facilities, and perform inspections of not less than eight pieces of measuring or testing equipment to determine whether or not:

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 schedule testing/calibration due date is shown on each piece of equipment
3. Tools and instruments requiring calibration are listed in department procedures

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities

Staff selected eight instruments/tools to verify annual calibration. The following are the results:

Item Number	Tracking Number	Serial Number	Description	Calibration Year	Comments
1	BD5336	80320236	Fluke Multimeter Series 73	2008 2007 2006	Missing Calibration - Item may have been retired. Passed - Certified Passed - Certified
2	BD5337	80320239	Fluke Multimeter Series 73	2008 2007 2006	Passed - Certified Passed - Certified Passed - Certified
3	BE2252	560931471	Torque Driver TLS 0406	2009 2008 2007	Pending Certification Passed - Certified Passed - Certified
4	BH6163	90350114	Snap On Torque Wrench	2009 2008 2007	Passed - Certified Missing - May have been broken at time of calibration. Passed - Certified
5	BD6163	WXJ85612	Torque Wrench Proto 6012	2009 2008 2007	Passed - Certified Passed - Certified Passed - Certified
6	BH6229	8730009	Fluke Multimeter Series 73	2008 2007 2006	Passed - Certified Passed - Certified Passed - Certified
7	Z8488	70461017	Fluke Multimeter Series 73	2008	Missing - May be out of service.

			2007	Passed - Certified
			2006	Passed - Certified
				Pending
8	BJ7284	505010785	Torque Driver TLS0406	2009 Certification
			2008	Passed - Certified
			2007	Passed - Certified

Findings:

- SDTI's tools and instruments are calibrated annually as required by Standard Operating Procedure (SOP), E-3008. SDTI has all its calibration required equipment tagged with a sticker which includes the following:
 - Company that performed calibration
 - Tracking number – Tracking number associates the item with the manufacturer's serial number.
 - Calibration date

SDTI does not currently have a fully inventoried list of all calibration required tools or instruments. However, SDTI is in the process of creating a master spreadsheet of all calibration required tools and instruments to track when the item was purchased, when the last time it was calibrated, when the next time it is due to be calibrated, if and when it has been repaired and if it has been retired. The Master Tool/Instrument Inventory spreadsheet is due to be completed by the end of August 2009.

- Each tool and/or instrument that requires annual calibration is marked with a sticker from the calibration company showing their company name, a tracking number, and the date of last calibration.
- Tools and/or instruments that require annual calibration are listed in SDTI's SOP, LRV Maintenance Department, Publication Number E-3008, dated 3/2/2009.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	27	System Safety Program Plan Update, Control and Implementation, Interagency Coordination between SDTI and SANDAG	
Date of Review	June 22, 2009	Department	SDTI, SANDAG
Reviewers	April Mulqueen Georgetta Gregory Anton Garabetian Noel Takahara	Persons Contacted	Wayne Terry – Chief Operating Officer John Haggerty – Principal Engineer

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009
2. 49 CFR Part 659 Section 19(g)

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

**SYSTEM SAFETY PROGRAM PLAN UPDATE, CONTROL AND IMPLEMENTATION;
INTERAGENCY COORDINATION BETWEEN SDTI AND SANDAG**

Interview SDTI's Chief Operating Officer and SANDAG Director of Engineering to evaluate the scope of Management involvement, coordination, and communication for improving the System Safety Program Plan. Specific commitments of review should include the following tasks:

1. Determine the source, frequency, and depth of safety information provided to the Chief Operating Officer
2. Determine the methods and incentives included in the management performance system to facilitate a system safety culture within the organization.
3. Determine the involvement of management in accident/hazardous condition investigations and corrective actions.
4. Determine the level where key safety decisions are made and the involvement of the management team in these decisions.
5. Determine the level and depth of Management review and follow-up on corrective actions, including those initiated by accidents, hazardous conditions, internal audits, and triennial audits.
6. Determine the level of coordination among SDTI departments and SANDAG projects and planning.

7. Determine the level of SDTI Safety's involvement in SANDAG projects and planning.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI COO and SANDAG Principal Engineer to discuss SSPP implementation and interagency coordination between SDTI and SANDAG. Interagency coordination was explored due to the unique nature of rail transit business practices in the San Diego region as opposed to every other major rail transit agency in the state of California outside of the San Diego Region. SDTI/MTS does not house an engineering / construction / capital development department; SANDAG is tasked to handle capital projects by legislation under Senate Bill (S.B.) 1703, although there are instances where they have provided engineering support other than in capital projects such as in response to hazards on the SDTI mainline. SANDAG is a separate agency and its engineering department is responsible for a variety of capital projects (Rail, Bus, and Highway) for multiple organizations with no direct report to SDTI or to MTS, the organization that oversees SDTI as well as San Diego Transit, the bus arm. Through review of project documents staff found that the level of coordination between SDTI and SANDAG in capital projects was sufficient.

Findings:

1. SANDAG's smallest capital project in the past couple of years on the SDTI system had an approximate project cost of \$150,000, not including emergency hazard responses. In the case of emergency hazard response, SANDAG will re-allocate budget and resources to mitigate if necessary.
2. S.B. 1703 governs relationship of SDTI and SANDAG.
3. Project coordination between SDTI and SANDAG is evident through project review meeting minutes. SDTI comments are evident on comment logs. SANDAG submitted 30, 60, and 90% drawing submittals to SDTI for review and comments.
4. System Safety Manager reports directly to COO to ensure that he is updated and informed with accidents, hazards, and corrective actions.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	28	Procurement	
Date of Review	June 22, 2009	Department	SDTI, SANDAG
Reviewers	Raed Dwairi	Persons Contacted	Fred Byle – Superintendent of Wayside Maintenance Marco Ynigez – MTS Buyer Lee Summerlott – Superintendent of LRV Maintenance Andy Goddard Jr. – Assistant Superintendent of LRV Maintenance

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 8.3.3
2. SDTI Procurement SOP

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Procurement

Conduct the necessary interviews and review appropriate records prepared during the last three years to determine whether or not:

1. SDTI developed & implemented adequate procedures & controls to preclude the introduction of defective or deficient equipment into its rail transit environment.
2. SDTI has the controls in place to safely deal with defective or deficient equipment in the event these are introduced into its rail transit environment.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff conducted interviews of both SDTI and SANDAG representatives involved in the procurement process and reviewed appropriate program documentation pertaining to projects completed during the last three years.

Findings:

Staff determined the following:

1. Procurement of goods and services is governed by SANDAG Board-Approved Policy No. 52 which establishes a unified process for acquiring all goods and service.
2. Aforementioned policy along with the Quality Assurance/Quality Control (QA/QC)

programs utilized by SANDAG during construction contains adequate controls that preclude the introduction of defective or deficient equipment into the rail transit environment.

3. SDTI does have the controls necessary to safely deal with defective equipment such as the case when the agency replaced the batch of bad insulators from the manufacturer that was introduced into the traction power system some years ago.
4. No exceptions were noted by staff.

Recommendations:

None.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	29	Contractor Safety Program	
Date of Review	June 24, 2009	Department	SANDAG Construction
Reviewers	Noel Takahara	Persons Contacted	William Prey – Principal Engineer

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 8.3.4
2. Contractor Safety SOPs

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Contractor Safety Program

Conduct the necessary interviews and review relevant records prepared during the last three years to determine whether or not:

1. All contractor personnel were instructed on relevant SDTI SOPs and the Roadway Worker Program.
2. All contractor personnel were qualified prior to entering the SDTI right-of-way or had qualified Lookouts.
3. SANDAG & SDTI coordinated contractor work performed on the ROW that was determined to impact revenue operations.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed SANDAG Principal Engineer and reviewed the 2006 SDTI Internal Safety Audit report.

Findings:

1. SDTI issued recommendations in the 2006 Internal Safety Audit report for the Contractor Safety Program to MTDB Engineering. MTDB Engineering duties have been assumed by SANDAG through consolidation and the department has not existed by that name since 2003.
2. Contractors are not allowed to perform work on the SDTI right of way without proper training or a trained SDTI employee acting as a lookout and flagger.

3. Contractors are instructed to make a Red-Tag request to the SDTI Superintendant of Transportation before conducting any work on the right of way.
4. SANDAG and SDTI coordinate contractor work through pre-construction meetings.
5. SDTI operations department prints daily train operator clearance/instruction forms issuing slow orders in designated work zones.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	30	Safety Certification	
Date of Review	June 23, 2009	Department	SANDAG
Reviewers	Noel Takahara	Persons Contacted	John Haggerty – Principal Engineer

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Section 8.3.1
2. GO 164-D Sections 11 & 12
3. GO 143-B

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Safety Certification

Conduct the necessary interviews of SANDAG representatives and review relevant documentation prepared during the last three years to determine whether or not:

1. SANDAG developed Safety Certification Plans in accordance with the requirements of GO 164-D for all major projects as those are defined in the GO.
2. SANDAG included all certifiable elements and sub-elements list in its LRV certification plan including car lengths on C Street as required by GO 164-D section 11.6(e).
3. SANDAG met all the requirements for Safety Certification Verification Reports in Section 12 of the GO.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed SANDAG representative in charge of Safety Certification of projects and reviewed document titled "SANDAG 2009 Capital Budget" that summarizes all planned projects that SANDAG will be working on for SDTI, highway, and bus agencies.

Findings:

1. Budget is approved for SDTI Mid Coast Light Rail Transit Project, and for Blue Line improvement projects. These projects have not entered preliminary engineering and therefore the safety certification process with Staff has not yet been initiated.
2. Blue Line Improvement project includes improvements to infrastructure (OCS, grade crossings surfaces, rail, station platform, SCADA, warning devices) and a capital purchase of

57 new LRVs. A budget of over 400 million dollars is approved for implementation of the planned improvements.

3. Mid Coast project is estimated to begin the preliminary engineering phase in Fall 2009. The new line/extension will run from Old Town Transit Center and provide service to La Jolla and the University of California San Diego campus.

Recommendations:

None

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	31	Configuration Management & System Modification	
Date of Review	June 23, 2009	Department	SANDAG
Reviewers	Anton Garabetian	Persons Contacted	Wayne Terry – Chief Operating Officer John Haggerty – Principal Engineer Bruce Smith

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, Effective April 2009, Sections 8.3.1 & 8.3.2
2. 49 CFR Part 659 Section 19(q)

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Configuration Management & System Modification

Conduct the necessary interviews of SANDAG and SDTI representatives in charge of the Configuration Management & System Modification Programs and review records for a sample of projects and Change Orders during the last three years to determine whether or not:

1. SANDAG & SDTI cooperated to ensure known hazards found during design review process for new equipment; system expansion and modification are included in the Hazard Identification Analyses & Resolution Process.
2. As-built documents are kept on-file at SANDAG's Engineering Offices.
3. SOP is adequate in describing configuration management policies as outlined in G.O. 164-D and 49 CFR Part 659.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff interviewed SANDAG and SDTI representatives in charge of the Configuration Management & System Modification Programs and reviewed records for a sample of projects and Change Orders during the last three years.

Findings:

1. SANDAG & SDTI cooperated during design review process for system modification. SDTI did not purchase major equipment and involve in system expansions. SANDAG submitted 30, 60, and 90% drawing submittals to SDTI for review and comments. SDTI stated that it

did not have major projects to trigger safety certification requirement. SANDAG and SDTI work together on all the projects and there is a comprehensive partnership among them. During implementation of any project, Safety Department is always involved.

2. SANDAG keeps the as built drawings in their offices.
3. SANDAG presented staff a draft copy of Configuration Management Plan for the Engineering and Construction Management Division document. SANDAG told staff that the document will be ready at the end of October 2009.
4. SANDAG Configuration Management Plan document is in draft form. A finalized and approved version is required by GO-164D section 3.2(q).

Recommendations:

1. SANDAG/SDTI should approve and start implementing the Configuration Management Plan for the Engineering and Construction Management Division document. (A repeat recommendation from 2003 and 2006 triennial reviews)
2. SDTI SSPP Section 8.3.2 should reference the Configuration Management Plan for the Engineering and Construction Management Division document.

**2009 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC (SDTI)**

Checklist	32	Operational Observations – CPUC Inspector	
Date of Review	June, 17, 2009	Department	Transportation
Inspectors	Don Filippi	Persons Contacted	Tom Tupta – Superintendent of Transportation

REFERENCE CRITERIA

1. SDTI Operating Rulebook
2. Applicable Operating Clearance Form(s)
3. SDTI SOP 105.01 – 105.07

ELEMENT, CHARACTERISTICS, AND METHOD OF VERIFICATION

Operational Observations

Conduct the necessary interviews and operational observations of at least three train operators to determine whether or not:

1. Operators adhered to the operating rules and temporary restrictions imposed by daily bulletins and Operating Clearance Forms.
2. Operators possessed the required operating and on-board safety equipment.

ACTIVITIES, FINDINGS, AND RECOMMENDATIONS

Activities:

Staff observed four operators on the SDTI Green, Blue, and Orange lines for rules compliance.

Findings:

1. Staff observed a train operator who averaged 5 MPH over the maximum approved speed limit. Train operator was observed traveling up to 8 MPH (travelling at 43 MPH) over the posted speed limit in non-conformance to SDTI Rule 2.1.14.
2. Staff observed a train operator that did not sound the audible warning until passing workers on the right of way in non-conformance to SDTI Roadway Worker Protection Plan Rule 100.5.
3. Staff observed a train operator whose horn use and sequence was inconsistent at grade crossings in non-conformance to SDTI Rule 4.1.1.

Recommendations:

SDTI should reinforce the urgency for train operators to follow rules and regulations, including speed limit restrictions and the use of audible warnings where appropriate, through rules compliance testing.