2016
TRIENNIAL
SAFETY REVIEW OF
BAY AREA RAPID TRANSIT DISTRICT
OAKLAND AIRPORT CONNECTOR
(BART OAC)

RAIL TRANSIT SAFETY BRANCH
SAFETY AND ENFORCEMENT DIVISION
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
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2016 TRIENNIAL SAFETY REVIEW OF BAY AREA RAPID TRANSIT DISTRICT OAKLAND AIRPORT CONNECTOR

ACKNOWLEDGEMENT

The California Public Utilities Commission's Rail Transit Safety Branch (RTSB) conducted this System Safety Program Review. Staff members directly responsible for conducting the review and inspection activities are:

Stephen Artus – Program and Project Supervisor
Steve Espinal – Senior Utilities Engineer Supervisor
Colleen Sullivan – Utilities Engineer, Representative to BART OAC
Debbie Dziadzio – Associate Transportation Operations Supervisor
Adam Freeman – Equipment Inspector
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1. EXECUTIVE SUMMARY

The California Public Utilities Commission's Safety and Enforcement Division (SED), Rail Transit Safety Branch (RTSB) conducted an on-site system safety program review of the Bay Area Rapid Transit District (BART) Oakland Airport Connector (OAC) in October, 2016.

The on-site review was preceded by an opening conference meeting between OAC personnel and Staff, on Monday, October 24. The review took place between October 24 – 28, 2016. The review focused on verifying the effective implementation of OAC's System Safety Program Plan (SSPP).

A post-review conference meeting followed the review on November 29, 2016, during which Staff provided OAC personnel with a synopsis of the review findings. The review results indicate that the OAC maintains a comprehensive system safety program, and has been effectively implementing its SSPP. However, Staff made note of several findings of non-compliance and include recommendations as appropriate.

Section 2 of this report, titled Introduction, provides a summary of the authority under which CPUC performs the triennial reviews, and presents a brief chronology of the review. Section 3, Background, includes a description of the BART OAC system. Section 4, explains the procedures used by Staff during the System Safety Review. The findings and recommendations are presented in Section 5, organized by source checklist numbers. Finally, the Appendices include tabulated findings and recommendations, and the complete set of review checklists with summaries of all review activities and the original comments, findings, and recommendations.

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's) 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 reviews of each rail transit agency's system safety program at 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 safety requirements.

Staff notified BART OAC's Manager by letter, dated September 23, 2016, of the scheduling of the Commission's Safety and Security Reviews to begin on October 24, 2016. The notification letter included the 27 checklists which served as the basis for the Safety Review. The checklists, included in Appendix E, focus primarily on verifying the effective implementation of the BART OAC's SSPP.

The Review began with an opening conference meeting on October 24, 2016, attended by Staff, BART OAC's Manager, and Safety and Security Manager, Doppelymayr Cable Car's (DCC) managers, and supervisors.

Staff conducted the on-site system safety inspections and records review from October 24 – 28, 2016. Staff provided the BART OAC personnel a verbal summary of any preliminary findings, and discussed potential recommendations for corrective actions at the conclusion of each review activity.

On November 29, 2016, Staff conducted a post-review exit meeting with BART OAC's and DCC's managers to verbally convey all the findings from the Review.

3. BACKGROUND

The Bay Area Rapid Transit District (BART) began operation on September 11, 1972 with 28 miles of track in Alameda County, servicing Oakland to Fremont. The second segment opened on January 29, 1973, with 12 miles of track extending the service from Fremont to Richmond. The third segment opened on May 21, 1973 with 17 additional miles of track marking the opening of the Concord Line. On November 5, 1973, service began between the Montgomery Street Station in downtown San Francisco and the Daly City Station, adding another 7.5 miles of track to the system. Transbay service began on September 16, 1974, bringing the full 71.5 miles of track into service. On May 27, 1976, the Embarcadero Station officially opened for revenue service, bringing the total station count to 34. The Embarcadero Station added no additional track miles.

Additional Extensions

The extension to North Concord/Martinez Station opened on December 16, 1995, adding 2.25 miles of track north of the Station. On February 24, 1996, Colma Station opened for revenue service, adding 1.6 miles of track south of the Daly City Station. The Pittsburg/Bay Point Station was the next to be opened for revenue service on December 7, 1996, completing a 7.8-mile segment of the Pittsburg/Antioch Extension from the Concord Station. The Dublin/Pleasanton extension opening followed on May 10, 1997, adding 14 miles of track and two stations to the system. The San Francisco Airport extension opened on June 22, 2003 adding four stations and 8.7 miles of track. The BART Oakland Airport Connector (BART OAC), also known as BART to OAK, began revenue operation on November 24, 2014. The OAC is a fully automated driverless transportation system operating along a 3.2 mile guideway. Currently, the system operates six lines on 107.2 miles of track with 45 stations.

The BART system operates six lines. These are:

- Fremont – Daly City Line
- Dublin/Pleasanton – Daly City Line
- Pittsburg/Bay Point- SFO Line/Millbrae Line
- Richmond- Millbrae Line
- Richmond-Fremont Line

- Oakland Airport Connector

Oakland Airport Connector (OAC)

BART's Oakland Airport Connector (OAC), also known as BART to OAK, began revenue operation on November 22, 2014. The system was designed and constructed by Flatiron Construction and Parson Transportation along with Doppelymayr Cable Car (DCC) who designed, manufactured, and supplied the Automated People Mover (APM) system and guideway. DCC now operates and maintains the system as part of a 20 year BART Operations and Maintenance Contract.

The OAC is a fully automated driverless transportation system operating along a 3.2 mile partially elevated, partially at-grade, dual guideway, providing a comfortable and reliable link between the Airport Station and Coliseum Station. The APM system operates with up to four cable propelled 3-car trains. Each station consists of a single-sided passenger boarding platform with a barrier wall and automatic platform door system separating the passenger platform from the guideway tracks. Near the mid-point of the end stations is the maintenance and storage facility (or Wheelhouse). The Wheelhouse houses administrative offices, the Central Control room, the ropeway drive machinery, and provisions for trains to be stored off of the mainline for maintenance. Two Tow/Maintenance Vehicles allow personnel to perform guideway inspections and maintenance activities, including towing revenue vehicles in and out of service.

The initial system consists of four 3-car trains operating in a pinched loop configuration on two separate lanes. The system is expandable, when built to ultimate capacity (4-car trains), to provide a peak period line capacity of 1900 passengers per hour per direction (pphpd).

Planned Extensions

BART has several system extensions currently in the construction phase.

Warm Springs Extension Project

The Warm Springs Extension Project will add 5.4 miles of track, extending from the Fremont Station to the new Warm Springs Station in South Fremont. Staff has been monitoring the engineering design and construction phase of this project through its Safety Certification process, and the Commission approved BART's Safety Certification Plan with Resolution ST-80.

Santa Clara Valley Transportation Authority/Silicon Valley Rapid Transit

District (VTA/SVRT) Project

The Santa Clara Valley Transportation Authority/Silicon Valley Rapid Transit (VTA/SVRT) Project is a 16.3 mile extension from the planned Warm Springs Station to Milpitas alongside the Union Pacific Railroad tracks, continuing to 28th Street and Santa Clara Street in San Jose, then proceeding underground through downtown San Jose to the Diridon Caltrain Station and finally terminating at the Santa Clara Station. Staff has been monitoring the engineering design and construction phases of this project through the Safety Certification process, and the Commission approved BART's Safety Certification Plan with Resolution ST-83.

East Contra Costa BART Extension (eBART) Project

The Contra Costa BART Extension (eBART) Project will provide passenger service along 10 miles of the California State Route 4 corridor connecting east of the Pittsburg/Bay Point Station. The extension will use Diesel Multiple Unit (DMU) vehicles instead of standard BART's heavy rail trains, and includes two new stations and a transfer platform to provide timed transfers between eBART and traditional BART trains. Staff has been monitoring the engineering design and construction phases of this project through the Safety Certification process, and the Commission approved BART's Safety Certification Plan with Resolution ST-112.

New Vehicle Procurement Project

BART has a new vehicle procurement project under way to add up to 1000 new rail cars to its existing fleet. The new cars will be rolled out between 2017 and 2023. Staff has been monitoring the procurement project through the Safety Certification Process, and the Commission approved BART's Safety Certification Plan with Resolution ST-150.

4. SYSTEM SAFETY REVIEW PROCEDURE

BART's Oakland Airport Connector has been in service since November of 2014, which was just less than 2 years at the time the review was conducted. After internal discussions and external discussions with BART, RTSB determined it would be advantageous for both BART and its contractor operator of the OAC for staff to conduct its first triennial review within the first two years of operation. That would allow staff to identify any deficiencies or gaps in the safety and security programs to address them early in the operations of OAC, as well as use the process as an educational tool for the contract operator of OAC.

Staff conducted the 2016 System Safety Review of Bay Area Rapid Transit District Oakland Airport Connector in accordance with Rail Transit Safety Section Procedure RTSS-4, *Procedure for Performing Triennial Safety Audits of Rail Transit Systems*. Staff developed 27 checklists to cover various aspects of system safety responsibilities, based on Commission and FTA requirements, the BART OAC's SSPP and other safety-related documents, and Staff's knowledge of the BART OAC's operations. The 27 checklists are included as Appendix E of this report.

Each checklist identified safety-related elements and characteristics that were either inspected or reviewed by Staff. The completed checklists include 3 findings of non-compliance and 3 recommendations pertaining to the BART OAC's SSPP and its procedures, and/or Commission regulations. The methods used to perform the review included:

- Discussions and interviews with BART and DCC management
- Review of rules, procedures, policies, 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 transit operations, and are known or believed to be important in reducing safety hazards and preventing safety incidents.

5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors who participated in the On-Site System Safety Review concluded that the BART OAC has a comprehensive SSPP, and is effectively implementing it. However, Staff observed 3 findings of non-compliance and provided 3 recommendations to improve the system safety program. These findings and recommendations are listed below, and grouped by checklist number.

FINDINGS AND RECOMMENDATIONS

1. **Policy Statement and Authority for System Safety Program Plan: Management Involvement and Commitment to Safety**

   No findings of non-compliance; no recommendations.

2. **System Safety Program Plan Goals and Objectives**

   No findings of non-compliance; no recommendations

3. **Overview of Management Structure**

   No findings of non-compliance; no recommendations.

4. **System Safety Program Plan: Control and Update Procedure**

   No findings of non-compliance; no recommendations.

5. **System Safety Program Plan: Implementation Activities and Responsibilities**

   No findings of non-compliance; no recommendations.

6. **Hazard Management Process**

   No findings of non-compliance; no recommendations.

7. Safety and Security Certification

No findings of non-compliance; no recommendations.

8. System Modification

No findings of non-compliance; no recommendations.

9. Safety Certification

No findings of non-compliance; no recommendations.

10. Accident/Incident Investigations

No findings of non-compliance; no recommendations.

11. Emergency Management Program

No findings of non-compliance; no recommendations.

12. Internal Safety Audits

No findings of non-compliance; no recommendations.

13. A. Rules Compliance: Observation and Enforcement:

Findings of Non-Compliance:

1. Staff confirmed with DCC's Internal Audit finding that currently DCC has no formal rules compliance observation procedures in their System Safety Program Plan.

Recommendations:

1. Initiate a formal Rules Compliance testing program for all personnel. This will include observations, structured tests, and efficiency testing on DCC operating rules, policies, and procedures. The program should indicate how often each employee will be observed (i.e. annually, quarterly, etc.), what types of tests will be performed and how the results will be tracked and analyzed and by whom.

13. B. Rules Compliance: Operations Safety Compliance

No findings of non-compliance; no recommendations.

14. Facilities and Equipment Inspections

No findings of non-compliance; no recommendations.

15. A. Maintenance Audits and Inspections – CPUC Inspector

No findings of non-compliance; no recommendations.

15.B. Maintenance Audits and Inspections – Central Control Equipment – CPUC Inspector

Findings of Non-Compliance:

1. Central Control Equipment equipment inspections should be scheduled, completed, and tracked according to the maintenance plan that has been established.

Recommendations:

1. OAC representatives responsible for the Central Control Equipment inspections should ensure that all inspections are being scheduled, completed and tracked. BART OAC representatives did acknowledge during interviews that some facility or equipment inspections were just recently added to the

Maintenance Management System (MMS), whereas in the past some inspections were not, Central Control Equipment being one of them.

15. C. Communications Systems Maintenance – CPUC Inspector

No findings of non-compliance; no recommendations.

15. D. Data Transmission System Maintenance – CPUC Inspector

No findings of non-compliance; no recommendations.

16. Training and Certification Programs: for Employees and Contractors

No findings of non-compliance; no recommendations.

17. Configuration Management and Control

No findings of non-compliance; no recommendations.

18. Local, State, and Federal Requirements: Employee Safety Program

No findings of non-compliance; no recommendations.

19. Hazardous Materials Program

No findings of non-compliance; no recommendations

20. Drug and Alcohol Program

No findings of non-compliance; no recommendations

21. Procurement Process

No findings of non-compliance; no recommendations

22. Hours of Service: Operators and Maintenance and Track

Findings of Non-Compliance:

1. Staff noted no exceptions in the records of the three employees reviewed. However, the BART OAC staff declared to not having hours of service program in place. Therefore, no one from the top down has been formally trained on nor do they track hours of service. Staff noted since the BART OAC found out about hours of service, the BART OAC staff have completed a draft to add to their SSPP.

Recommendations:

1. Staff recommends that the BART OAC finish and implement hours of service program.

23. Contractor Safety Program

No findings of non-compliance; no recommendations.

APPENDICES

APPENDIX A. ABBREVIATION AND ACRONYM LIST

Abbreviation or Acronym	Definition
ATC	Automatic Train Control
ATO	Automatic Train Operation
ATP	Automatic Train Protection
CAP	Corrective Action Plan
CAPL	Controlled Assembly Part List
CFR	Code of Federal Regulations
Commission	California Public Utilities Commission
CPUC	California Public Utilities Commission
DCC	Doppelmayr Cable Car
ECN	Engineering Change Notice
FMI	Field Modification Instruction
GO	General Order
GRACIS	Governance, Risk, and Compliance Information System
HSE	Health, Safety, and Environment
ISSA	Internal Safety and Security Audit
LOTO	Lock-Out/Tag-Out
MSDS	Material Safety Data Sheets
PLC	Programmable Logic Controller
PM	Preventative Maintenance
SCHNM	Safety Concern Hazard Near Miss
SCM	Safety Committee
SIMS	Site Information Management System
SSPP	System Safety Program Plan
Staff	Rail Transit Safety Branch Personnel

TCA	Temporary Change Authorization
UPS	Uninterruptible Power Source

APPENDIX B. LIST OF FINDINGS

No.	Finding	Checklist No.
1	Staff confirmed with DCC's Internal Audit finding that currently DCC has no formal rules compliance observation procedures in their SSPP.	**13-A**
2	Inspections on the Central Control Equipment should be scheduled, tracked, and completed according to the maintenance plan that has been established.	**15-B**
3	Staff noted no exceptions in the records of the three employees reviewed. However, the BART OAC staff declared to not having hours of service program in place. Therefore, no one from the top down has been formally trained nor do they track hours of service. Staff noted that since the BART OAC found out about hours of service, the BART OAC staff have completed a draft to add to their SSPP.	**22**

APPENDIX C. LIST OF RECOMMENDATIONS

No.	Recommendation	Checklist No.
1	The OAC should initiate a formal Rules Compliance testing program for all personnel. This will include observations, structured tests, and efficiency testing on DCC operating rules, policies, and procedures. The program should indicate how often each employee will be observed (i.e. annually, quarterly, etc.), what type of tests will be performed, and how the results will be tracked and analyzed and by whom.	**13-A**
2	The OAC representatives responsible for the Central Control Equipment inspections should ensure that all inspections are being scheduled, completed, and tracked. The OAC representatives did acknowledge during interviews that some facility or equipment inspections were just recently added to MMIS, whereas in the past some inspections were not, Central Control Equipment being one of them.	**15-A**
3	The OAC should finish and implement its hours of service program.	**22**

APPENDIX D. CHECKLIST INDEX

Checklist No.	Element/Characteristic	Checklist No.	Element/Characteristic
1	Policy Statement and Authority for System Safety Program Plan (Leadership Involvement and Commitment to Safety)	**14**	Facilities and Equipment Inspections
2	System Safety Program Plan Goals and Objectives	**15-A**	Maintenance Audits and Inspections
3	Overview of Leadership Structure	**15-B**	Maintenance Audits and Inspections: Central Control Equipment
4	System Safety Program Plan Control and Update Procedure	**15-C**	Communications System Maintenance – CPUC Inspector
5	System Safety Program Plan Implementation, Activities, and Responsibilities	**15-D**	Data Transmission System Maintenance
6	Hazard Management Process	**16**	Training and Certification Program for Employees and Contractors
7	Safety and Security Certification	**17**	Configuration Management and Control
8	System Modification	**18**	Local, State, and federal Requirements and Employee Safety Program
9	Safety Data Collection and Analysis	**19**	Hazardous Materials Programs
10	Accident/Incident Investigations	**20**	Drug and Alcohol Program
11	Emergency Management Program	**21**	Procurement Process
12	Internal Safety Audits	**22**	Hours of Service: Operators and Maintenance, and Track
13-A	Rules Compliance	**23**	Contractor Safety Program
13-B	Rules Compliance: Operation Safety Compliance Program Inspection		

APPENDIX E. CHECKLISTS

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**1**	**SUBJECT**	**POLICY STATEMENT AND AUTHORITY FOR SYSTEM SAFETY PROGRAM PLAN (LEADERSHIP INVOLVEMENT AND COMMITMENT TO SAFETY)**
Date of Review	OCTOBER 24, 2016	Department(s)	BART OAC Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Steve Artus** **Steve Espinal** **Colleen Sullivan**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, , BART System Safety Engineer Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator David Murphy, Chief Operating Officer

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Policy Statement and Authority for SSPP (OAC Leadership Involvement and

Commitment to Safety)

Interview BART Line Manager and DCC O&M Manager to determine and discuss:

1. Source, frequency, and depth of safety information provided to the BART Line Manage, whether safety is included as a regular topic at OAC SSRC meetings, and whether OAE Safety gives reports at SSRC Meetings.
2. Methods included in the management performance system to facilitate a system safety culture within the organization.
3. Formal meetings held and attended by OAC Leadership to discuss safety performance (such as ongoing evaluation of goals and targets).
4. OAC awareness of high priority safety issues related to operations & maintenance of the APM system.
5. BART Line Manager awareness of the status of all corrective actions including those initiated by accidents, hazardous conditions, internal safety & security audits (ISA), CPUC triennial reviews, and CPUC inspections.
6. Safety issues regarding interagency coordination among various contractors.

RESULTS/COMMENTS

Activities:

1) The BART Superintendent OAC Systems and BART System Safety Engineer attend the monthly safety review committee meeting. The Superintendent and the System Safety Engineer as well as the OAC Chief Operating Officer are in regular communication with the BART Chief Safety Officer. But whose responsibility to communicating safety information to BART is left to BART System Safety Engineer. Any disruption of service over 20 minutes is reported to BART Chief Safety Officer. The Chief Operating Officer is also informed of any outages and any drills. The OAC Chief Operating Officer reports the BART's Chief Operating Officers.
2) Management regularly inspects the system for safety concerns, reviews accidents and responds to complaints.
3) OAC conducts a monthly safety review meeting to review all safety concerns.
4) BART documents all accidents and safety concerns to closure.
5) Line Management tracks all accident, safety concerns and ISA concerns to closure. The safety issue punch list was reviewed by staff and shown to detailed and complete. The list provided a detailed description of the safety concern, date discovered, corrective action description and date of correction.
6) BART and Doppelmayr work closely together on a daily basis.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**2**	**SUBJECT**	**SYSTEM SAFETY PROGRAM PLAN GOALS & OBJECTIVES**
Date of Review	OCTOBER 24, 2016	Department(s)	BAY AREA RAPID TRANSIT (OAE) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Steve Artus** **Steve Espinal** **Colleen Sullivan**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, , BART System Safety Engineer Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SSPP Goals and Objectives

Conduct an interview with OAE and review appropriate records to:

1. Determine if the SSPP goals and objectives have been achieved.
2. Obtain examples of how goals are evaluated (metrics/measures) and review documentation used to measure and track OAE activity to meet the goals and objectives

(for example, if OAE set a goal of reducing incidents by 10%, has this been achieved? Where is it tracked and reported?).

3. Determine how safety performance is reported to the OAE BART LINE MANAGER or Leadership.
4. Make a determination regarding the adequacy of the safety information provided to the OAE BART LINE MANAGER (is BART LINE MANAGER receiving sufficient information to ensure OAE is meeting its safety goals and objectives? Are rule(s) violations and other key safety measurements being tracked and reported to the BART LINE MANAGER?).
5. Determine whether the stated goals and objectives should be revised.
6. Determine whether management responsibilities are adequately identified for the goals and objectives.

RESULTS/COMMENTS

Activities:

1) Reviewed the SSPP and discussed SSPP goals and objectives with OAC staff.
2) OAC has no reportable incidents since its inception.
3) OAC keeps a detailed record of incidents and accidents. The accidents are documented and addressed if possible through corrective actions.
4) Based on the detailed accident information provided to the CPUC the Line Manager is provided sufficient information. The Line Manager is also responding and conducting corrective action to areas of concern.
5) With zero reportable incidents since the inception of the OAC in 2014 stated goals are being met.

Comments:

1. The SSPP states on page 12: "The expected completion date of the design-build and start revenue passenger service is planned in the fall of 2014." It appears the SSPP has not been reviewed since early 2014. Section 4.1 entitled Annual SSPP Review on page 16 states "The SSPP will be reviewed annually and will be updated when reviews result in plan changes."

2. The SSPP states on page 24 Section 7 Safety Certification Process: Expansions, extensions, major system overhauls and fleet replacement may require a Safety Certification as described in the Oakland Airport Extension's Contract. General Order 164-D section 11.2 states: "Each RTA shall prepare a Project specific Safety Certification Plan (SC Plan) for each of its Projects. Applicable FTA guidelines shall be used as a reference." Major construction projects including expansions, extensions, and fleet replacements require Safety Certification plans to be adhered to and presented to the

CPUC. Findings: None. Recommendations: None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**3**	**SUBJECT**	**OVERVIEW OF LEADERSHIP STRUCTURE**
Date of Review	OCTOBER 24, 2016	Department(s)	BAY AREA RAPID TRANSIT(OAC) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Steve Artus** **Steve Espinal** **Colleen Sullivan**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, , BART System Safety Engineer Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Overview of Management Structure

Conduct an interview with OAC SSRC and review appropriate records to:

1. Discuss OAC process to integrate safety into OAC operations and maintenance activities.
2. Solicit opinions regarding the effectiveness of the organization and request a few examples of how this organization has worked to resolve identified safety issues.
3. Determine if there are specific needs such as the ability to maintain schedules for SSPP

updates and key activities, such as internal safety & security audits and accident investigations OAC SSRC cannot meet due to limitations in personnel or resources.

4. Review SSRC meeting minutes from the past year to verify that the meetings followed the SSPP requirements.

RESULTS/COMMENTS

Activities:

1) At 6 am tailgate meeting are conducted for the morning shift covering safety issues. At 2 pm tailgate meeting is conducted for the swing shift. Many of the questions from staff are related to PPE. There is mechanism for feedback including confidentially. Paper forms are used to clock in.
2) Weekly Tailgate forms are related to OSHA safety topics.
3) Emergency drills are conducted which include Fire Department and Police Department participation. Table topic training is conducted regarding suspicious bags and train fires. Both Chief Baker of the Oakland Fire Department and Kevin Franklin of BART Police also attend the meeting.
4) According to OAC they hold a meeting to discuss the SSPP. Track the incident information and corrective action in their logs. According to OAC staff they discuss the SSPP for changes. After reviewing the SSPP it appears the SSPP hasn't been reviewed since at least early 2014. Please refer to the Findings in Checklist 2.
5) All SSRC meetings are conducted monthly. Meeting minutes are documented.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**4**	**SUBJECT**	**SSPP CONTROL & UPDATE PROCEDURE**
Date of Review	OCTOBER 24, 2016	Department(s)	BAY AREA RAPID TRANSIT(OAC) Leadership, Safety and Security Review Committee (SSRC),
Reviewers/ Inspectors	**Steve Artus** **Steve Espinal** **Colleen Sullivan**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, , BART System Safety Engineer Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SSPP Control & Update Procedure

Conduct an interview with OAC SSRC and review appropriate records to:

1. Ensure the SSRC understands the requirements and is implementing them.
2. Verify the required annual SSPP review process is being implemented according to the approved process specified in the SSPP (review responsibility, internal timeframes,

comprehensiveness, and sign-offs).

RESULTS/COMMENTS

Activities:

1) The Safety and Security Review Committee is doing the job regarding safety issues but hasn't been reviewing the SSPP for updates.
2) There are changes required of the SSPP to be conducted this year and will be conducted after the audit.

Comments: The Safety and Security Review Committee is doing the job regarding safety issues but has not been reviewing the SSPP for updates.

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**5**	**SUBJECT**	**SSPP IMPLEMENTATION ACTIVITIES & RESPONSIBILITIES**
Date of Review	OCTOBER 24, 2016	Department(s)	BAY AREA RAPID TRANSIT(OAC) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Steve Artus** **Steve Espinal** **Colleen Sullivan**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, , BART System Safety Engineer Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SSPP Implementation Activities and Responsibilities

Conduct an interview with OAC SSRC and review appropriate records to:

1. Verify each manager, department and contractor charged with responsibility and accountability for the SSPP implementation, enforcement, and effectiveness.
2. Identify any challenges each manager, department and contractor has in performing the

SSPP safety-related tasks.

3. Verify leadership accountability for the performance of the safety-related activities, and if serious or potentially serious deficiencies are found, expand the review to include additional and/or related activities.

RESULTS/COMMENTS

Activities:

1) OAC staff does a good job regarding the monitoring and responding to safety concerns.
   a) The based on the staffs comments working with the public provides the greatest challenge.
   b) Training of the SSPP is provided by OAC staff.

Comments:

None.

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**6**	**SUBJECT**	**HAZARD MANAGEMENT PROCESS**
Date of Review	OCTOBER 24, 2016	Department(s)	Safety
Reviewers/ Inspectors	**Steve Espinal**	Person(s) Contacted	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC), OAC Environmental Jacob Fagan, DCC Operations & Maintenance Manager Louis Wilson, DCC Assistant Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC Accident Investigation Procedure, Revision 1.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazard Management Process

Interview OAC representative(s) / APM System Contractor and review appropriate records

to determine whether or not:

1. OAC is identifying hazards through the sources described in the SSPP. Sources may include, but are not limited to:
   - Reports and complaints from passengers, field or management personnel;
   - APM system contractor's Central Control logs and maintenance systems;
   - Reports from APM system contractor's shift pass down;
   - Review of APM system contractor's Central Control logs for unusual occurrences;
   - OAC / APM system contractor's OSHA 300A;
   - Annual internal audits;
   - APM system contractor's weekly and monthly facility inspections;
   - APM system contractor's Rule book compliance;
   - Results from CPUC Triennial Reviews;
   - Results from accident investigations and trend analysis.
2. SSRC maintains a mechanism to capture and track identified hazards through analysis and resolution.
3. OACE has defined minimum thresholds for the notification and reporting of hazard(s) to the CPUC and has a specified process for reporting of hazard resolution activities to the CPUC (as required by items (e) and (f) in Section 6 of GO 164-D).
4. Identified hazards are being evaluated according to the methods established in the SSPP.
5. Corrective Action Plans (CAPs) are developed to address identified hazards and the CAPs identify the individual or department responsible for implementation and a schedule for completion.
6. OAC SSRC follows up on outstanding CAPs developed to mitigate or resolve hazards.
7. Request examples of how the SSRC followed the process, monitored other departments, and ensured identified hazards were reported to the SSRC.

R. HESULTS/COMMENTS

Activities:

1) Oakland Airport Connector (OAC) identifies hazardous conditions through:
   - Passenger complaints
   - Hazard Logs
   - Shift down Reports
   - Accident and Incident Reports
   - Internal Safety Audits
   - Facility Inspections
   - Maintenance Records
   - CPUC inspections and audits.
   - Shift Report and Near Miss Report

2) OAC uses a Risk Matrix to identify the severity of a hazardous condition. The hazards are qualified by Severity and Probability and documented in the hazard log. The hazards are tracked through corrective actions to completion date. The Safety Security Review Committee (SSRC) discusses the hazards on a monthly basis.
3) OAC SSPP does not provide the minimum threshold for an unacceptable hazardous condition. But hazardous conditions are well documented and discussed at the System Safety Resolution Committee. Hazards include hitting the wrong announcement button which was documented and addressed. However no hazardous conditions have been reported to the CPUC.
4) OAC is closely following the Risk Matrix.
5) Based on the OAC Hazard Log there have been 30 hazardous conditions logged and only two remain open. All hazardous are closed in weeks and some are closed in little over a month.
6) The hazard log is a detailed document including the description of the hazard, date logged and mitigation status and close out date. The hazards are reported to the SSRC meetings by the System Safety Coordinator.

Comments:

None.

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**10**	**SUBJECT**	**ACCIDENT/INCIDENT INVESTIGATIONS**
Date of Review	OCTOBER 25, 2016	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Steve Espinal**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. BART OAC Accident Investigation Procedures

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident/Incident Investigations

Interview OAC's responsible representatives and randomly select at least four accidents involving an injury or fatality reportable to the CPUC during the past 24 months and determine if:

1. Each accident was reported to the CPUC as required and that the final report was submitted as required.
2. OAC reported the accidents to the CPUC within two hours as required by GO 164-D, Sections 7.1 & 7.2.
3. The immediately reportable incident notifications to CPUC staff contained all of the information required by GO 164-D, Section 7.3.
4. The accident was investigated in compliance with the requirements of GO 164-D, Section 8, and CPUC-approved accident investigation procedures.
5. Ensure that the final report identified:
   - Each item covered in the investigation.
   - The investigation findings of the most probable cause.
   - Underlying contributing causes.
   - A CAP to address the identified causes and that it minimized the incident from recurring.
   - A schedule for implementing the CAP, which has been completed or is being monitored on an on-going basis.

RESULTS/COMMENTS

Activities:

Since November 2014 the inception Oakland Airport Connector has not experienced a reportable accident.

Comments:

None

Findings:

None

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**7**	**SUBJECT**	**SAFETY AND SECURITY CERTIFICATION**
Date of Review	**OCTOBER 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Rupa Shitole** **Jamie Lau**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, BART Senior Engineer System Safety

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety and Security Certification

Interview the OAC representative(s) in charge of the Safety Certification Program and review the records of any major projects to:

1. Determine if a formal safety and security certification plan (SC Plan) has been submitted by OAE and approved by the Commission.
2. Verify that each Safety Certification Plan was consistent with GO 164-D, OAE SSPP, and OAE reference documents.

3. Determine whether or not there are effective communications and liaison with CPUC staff throughout the life of the current and planned projects including Preliminary Engineering Design Phase.
4. Determine whether or not all design and construction changes were properly coordinated and addressed in the safety certification process.
5. Determine whether or not all identified hazards have been eliminated or controlled as required under the Safety Certification Plans.
6. Determine whether or not the Safety Certification Verification Report was submitted to the CPUC in a timely manner according to GO 164-D.

RESULTS/COMMENTS

Activities: CPUC Staff interviewed the BART OAC representatives who are responsible for the Safety and Security Certification. The following information was provided and the appropriate records were also reviewed:

1. Reviewed the following letters: BART letter dated October 29, 2014 in reference to Safety and Security Certification Verification Report (Notice of intent to operate); CPUC letter dated November 7, 2014 acknowledging BART letter stating some non-safety items were open; BART letter dated February 19, 2015 stating all items were closed;
2. Reviewed BART letter submitting SCP for OAC dated June 26, 2003 and CPUC Resolution ST-64 approved by Commission October 2, 2003. The Safety and Security Certification Plan for OAC Project dated June 2003 (Revision 0) was signed by BART System Safety Manager, Chief, Bart Police, Assistant General Manager, and General Manager.
3. Preliminary Engineering (PE) design occurred from 2002 to 2009 and CPUC assigned engineer was involved during the life time of this project. CPUC attended Fire Life Safety Committee (FLSC) and Safety and Security Review Committee (SSRC) meetings as needed. The OAC project was first introduction to the CPUC in October 2002. Randomly reviewed SSRC meeting minutes dated April 2011 to November 2014 and FLSC meeting minutes dated June 2011 to June 2014. CPUC assigned engineer participated in the OAC project as time permitted.
4. BART stated that there was no major change to the design and construction during the project. An example of minor change was shared by OAC in regards to a Stand by Generator changes that were made and it was tracked to completion. Change orders 36 (design) and 37 were mentioned during this review supporting this minor change. Change order 39.1 related to Emergency Generator Failure Mode design dated March 22, 2012 was also shared and was tracked to completion.

5. Signed Certificates from BART for the OAC project confirmed all hazards were identified and eliminated and or controlled as required.
6. Refer to bullet #1.

Comments:

None

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**8**	Subject	System Modification
Date of Review	**October 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Arun Mehta**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, BART System Safety Engineer

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. BART APM Modification / Change Request Procedure

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Modification

Conduct interviews and review appropriate records to:

1. Determine the SSPP and referenced or supporting procedures ensure a process exists for addressing safety issues and concerns in system modifications.
2. Verify that the Safety and Security Review Committee (SSRC) was involved in assessing any system modifications over the last 3 years; verify that the process followed was consistent with SSPP requirements and included an evaluation of the modifications' potential hazards to the system.
3. Determine the SSRC role in ensuring that safety concerns are addressed in system modifications by identifying their specific activities in the process such as documented participation in testing and inspections and observations performed at work sites.
4. Determine through a sample of system modification projects if the modification meets the specifications or project requirements, and if any unauthorized modifications were performed.

RESULTS/COMMENTS

Activities:

Staff interviewed BART OAC personnel and established the following.

1. OAC does have a sound procedure identified in Section 2.12 of their OAC O&M Contract Binder describing the steps necessary to make system modifications.
2. Any problems or issues arising during normal operation and maintenance are reviewed by the SSRC to identify the root cause, the severity of any hazard, and steps required to mitigate the problem.
3. Staff reviewed records of two System Modification projects which were handled satisfactorily per OAC O&M procedure section 2.12. The records show full needed participation of the SSRC in

ensuring the safety concerns of the problems needing system modifications. These two projects involved: (1) Modifying the access gate circuit" initiated on 3/15/2016 and (2) Software upgrade for train door inhibitors, initiated on 8/16/2016.

4. Review of the two system modification projects identified above, showed that the modifications met the project specification requirements and no unauthorized modifications were performed.

Comments:

None.

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**9**	**SUBJECT**	**SAFETY DATA COLLECTION AND ANALYSIS**
Date of Review	**OCTOBER 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Rupa Shitole** **Jamie Lau**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, BART Senior Engineer System Safety

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety Data Collection and Analysis

Interview the OAC representative(s) responsible for safety data acquisition and analysis and review the safety data acquisition and analysis program requirements to determine if:

1. The data collected includes, at minimum, information concerning OAC accidents and incidents, employee performance failures, equipment failures, and procedural deficiencies.

2. The safety data is supplied by and collected from all departments including Operations, Claims Management, and Maintenance as appropriate.
3. The safety data collected is then analyzed and, if necessary, incorporated into OAC's Hazard Identification and Resolution Process.
4. The safety data collected and the resulting analyses are made available to OAC departments for use in planning their safety-related activities.
5. Periodic reporting regarding the results of the safety data analysis is provided to the OAC Executive Management as appropriate.
6. Verify that the safety data sources identified in the SSPP are being used and data analysis and distribution are implemented.

RESULTS/COMMENTS

Activities: CPUC Staff interviewed the BART OAC representatives who are responsible for the Safety Data Collection and Analysis. The following information was provided and the appropriate documents were also reviewed:

1. OAC's ongoing safety data collection and reporting occurs on the Hazard log. The Hazard log compromises of identified hazards, near misses, accidents, incidents, audits, inspections, NTD events, rules & procedural deficiencies. This log tracks everything on a daily basis. DCC updates the log as needed and shares the data with BART using Share Point access. CPUC staff reviewed Form V for April 2016 and July 2016 with attached Hazard Log submitted to the CPUC. Not every hazard is reportable to the CPUC but OAC submits a monthly log to the CPUC with the Form V monthly submittal. The emergency tabletop drill corrective action plan(s) are tracked at the SSRC meeting under a different section until closure.
2. DCC has controls of the safety data that is collected on a day to day basis. The data is collected from various resources like weekly safety meeting, tool box meeting, weekly meeting, and other walk through inspection on a daily basis.
3. All hazards are analyzed and assessed a probability and severity rating as per the Hazard Identification and Resolution Process. An example shared by OAC discussed a HVAC maintenance safety bulletin having high severity.
4. DCC is the BART contractor who is in charge of all data logging and sharing the information ongoing with BART.
5. BART Superintendent has a one on one meeting with the Chief Operating Officer of BART OAC, where the hazard log is shared and discussed. The Quarterly OAC Service Reports are submitted to the Chief Operating Officer of BART OAC via email. Those reports contain quarterly data like Passenger Safety, System, etc. Staff reviewed hazard log and reports submitted to Chief Operating Officer of

BART OAC. This data is then sent to the Executive management for their review.

6. SSPP section 9 identifies the different data sources. OMMIS software system tracks all system faults and performances that are monitored ongoing by OAC and DCC.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**10**	Subject	Accident/Incident Investigations
Date of Review	**October 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Steve Espinal**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

4. General Order 164-D
5. BART OAC System Safety Program Plan (SSPP)
6. BART OAC Accident Investigation Procedures

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident/Incident Investigations

Interview OAC's responsible representatives and randomly select at least four accidents involving an injury or fatality reportable to the CPUC during the past 24 months and determine if:

6. Each accident was reported to the CPUC as required and that the final report was submitted as required.
7. OAC reported the accidents to the CPUC within two hours as required by GO 164-D, Sections 7.1 & 7.2.
8. The immediately reportable incident notifications to CPUC staff contained all of the information required by GO 164-D, Section 7.3.
9. The accident was investigated in compliance with the requirements of GO 164-D, Section 8, and CPUC-approved accident investigation procedures.
10. Ensure that the final report identified:
    - Each item covered in the investigation.
    - The investigation findings of the most probable cause.
    - Underlying contributing causes.
    - A CAP to address the identified causes and that it minimized the incident from recurring.
    - A schedule for implementing the CAP, which has been completed or is being monitored on an on-going basis.

RESULTS/COMMENTS

Activities:

Since November 2014 the inception Oakland Airport Connector has not experienced a reportable

accident.

Comments:
None

Findings:
None

Recommendations:
None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**11**	Subject	Emergency Management Program
Date of Review	**October 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAC) Leadership, Safety and Security Review Committee (SSRC)
Reviewers/ Inspectors	**Rupa Shitole**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. BART System Security Plan (SSP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Emergency Management Program

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

1. Solicit an overview of the process for OAC's emergency planning, training, and drill/exercise program and specific examples of coordination with emergency response agencies on emergency planning and drill/exercises.
2. Verify a drill/exercise schedule has been created and followed and verify emergency responders and other outside agencies participation in OAC's emergency planning.
3. Determine when was the last drill/exercise performed and if post-drill action report developed? Was the post-drill action report used to make revisions to OAC's Emergency Plan and/or procedures? If so, have these corrective actions been implemented with OAC staff and emergency responders?
4. Determine if OAC conducts periodic meetings with sheriff and fire departments in OAC jurisdictions, emergency response agency familiarization activities have occurred as scheduled and corrective actions have been implemented.

RESULTS/COMMENTS

Activities: CPUC Staff interviewed the BART OAC representatives who are responsible for the Emergency Management Program. The following information was provided and the appropriate documents were also reviewed:

1. BART OAC states that planning of any drills is started at the SSRC meetings. Emergency Response Agencies like Fire Department (FD), Chief of Police, and Sheriff are a part of the SSRC meetings and they attend as needed. Drill plan is drafted and submitted to the Emergency Response Agencies for further review and comments. An example of Active shooter checklist was

shared for CPUC review. Readiness Drills is an actual topic at the SSRC monthly meetings. BART performs two drills each year as per their SSPP (Active Full Scale drill and Table Top drill). Other emergency exercise checklists that were shared:

- Injury on ROW drill checklist was shared dated October 16, 2016 – This checklist report is still in final draft format and currently under review. Any recommendations on the checklists are being discussed at the SSRC meeting.
- Death or Injury on the ROW checklist was shared.

2. Refer to bullet #1. Drills are scheduled at the SSRC monthly meetings. Chief of BART Police attends the SSRC meeting and then includes coordination with the other outside agencies as needed. Further, the outside agencies participate in these drill exercises if it comes in their jurisdiction.
3. BART had a drill exercise on October 16, 2016. This last drill exercise report results have not yet been implemented because the final draft report is still undergoing review and discussion by BART. The BART OAC Fire in the Tunnel report dated 10/25/15 was shared; recommendations were made in this report in regards to coordination of Incident Command, On-scene Coordinator, etc. related to communications. All the future checklists were updated based on the recommendations from this drill. The Operations Emergency Manual (OEM) will be updated annually as needed if any recommendations are associated with this manual. Suspicious Package report dated 2015 was shared; Tabletop exercise Fire at Coliseum Station report dated June 8, 2016 was shared; Emergency Plan was updated as needed and Emergency Procedures training power point is updated as needed based on the drill scene checklist. The checklists are updated after each drill/exercise and then this becomes a part of the OAC emergency response plan. All recommendations have been closed out except the last drill report dated Injury on ROW drill checklist dated October 16, 2016. SSRC meetings track all the corrective action plans to closure.
4. Fire Department(s) gets training as needed during the ongoing drills. Before the opening of the OAC system all the outside agencies like BART Police, Sheriff, Fire Departments, Highway Patrol, Port Operations, etc., received familiarization training.

   EMS, TSA, BART Police, Sheriff, FD, Highway Patrol, and Port Operations are invited depending on the drill checklist requirements. BART OAC and DCC are open to all training familiarization for outside agencies, they provide as much as training as possible.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**12**	Subject	Internal Safety Audits
Date of Review	**October 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Arun Mehta**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, BART System Safety Engineer

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. BART OAC Audit Schedules 2011-2014, 2015-2017.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Internal Safety Audits

Conduct the necessary interviews and review appropriate records prepared during the last year to verify that:

1. A three-year internal audit schedule was developed and submitted to the CPUC.
2. All of the required system safety program elements were evaluated within the past three years.
3. The audit included the use of field verification methods to verify the condition of infrastructure and rules compliance activities.
4. The audit adequately addresses interdepartmental and interagency communication issues and whether or not OAC has a process in place for addressing and overcoming non-responsiveness of other department's non-implementation of audit recommendations.
5. How expertise for auditing specific functions is evaluated to ensure the quality of the internal audit.
6. Audits have been properly documented and include references for documents and activities, reviewed criteria for evaluation, and notes to support findings and recommendations.
7. The Audit Report is accompanied by a letter from BART Safety stating OAC's compliance status with its SSPP and/or corrective actions for elements determined not to be in compliance.
8. Corrective actions to address findings from the audit were scheduled, implemented, and tracked.

RESULTS/COMMENTS

Activities:

Staff interviewed BART OAC personnel and established the following.

1. A three-year internal audit schedule was developed by Safety and Security Review Committee (SSRC) and submitted to the CPUC.
2. It has been less than two years since the opening of BART OAC and they have completed the internal safety audit of 12 out of 21 ISA scheduled elements.
3. Infrastructure inspections and use of field verification methods are expected to be accomplished in the future audits scheduled for next 12+ months.
4. OAC is a small organization consisting of ~ 30+ employees and the interdepartmental and interagency communication issues have not arisen or been a problem yet and are not anticipated to in the future.
5. OAC SSRC has used the expertise and services of Randy Roderick from their parent organization in conducting internal safety audit of some elements. They need to involve more experts from their parent organization on an as needed basis in conducting future internal safety audits of the remaining SSPP elements.
6. OAC staff showed examples of ISA documents showing audit notes and recommendations. Staff felt that OAC might be confusing the safety audit of individual SSPP elements with the SSPP document sections review and attempted to clarify the difference. Staff recommended that the title "System Safety Program Plan audit schedule" be changed to "Internal Safety Audit Schedule of the SSPP Elements."
7. OAC staff has prepared and sent annual ISA documentation with cover letters to their parents organization BART during 2015 and 206 and plan to do so in the future.
8. Corrective actions plans to address findings from the audits were scheduled, implemented, and tracked. Recommendations and corrective action of "adding hazard severity to the Hazard Log" is an example of audit finding and corrective action which was implemented. Staff suggested a more formal annual documentation of audit findings and corrective action schedule and implementation.

Comments:

1. OAC SSRC needs to involve more experts from their parent organization on an as needed basis in conducting future internal safety audits of the remaining SSPP elements.

2. It is suggested that the title "System Safety Program Plan audit schedule" be changed to "Internal Safety Audit Schedule of the SSPP Elements" for clarity.

Findings: None.

Recommendations: None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**13-A**	Subject	Rules Compliance
Date of Review	**October 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Debra Dziadzio**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Will Montgomery, DCC System Safety Coordinator Jacob Fagan, OAC O&M Manager - DCC

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAE's APM System Contractor (DCC)s Rule Book
4. OAE's APM System Contractor (DCC)s Maintenance Manual, Operations Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance

Conduct the necessary interviews and review appropriate records prepared during the last year to:

1. Verify OAC's APM contractor performs formal observations of controllers as specified in the SSPP.
2. Verify OAC's APM contractor performs observations of maintenance employees as specified in the SSPP and/or referenced or supporting procedures.
3. Verify that both operations and maintenance employees are evaluated based on their performance during unannounced observations to determine their compliance with safety rules, procedures, and/or practices.
4. Determine if any accidents were caused by failure of operations and procedures and verify corrective actions implemented.
5. Verify if OAC SSRC receives reports from the APM contractor Operations and Maintenance Department regarding the performance of rules checks, assessments, and testing? Are hazards identified from the rules compliance process and reported to OAC SSRC, managed through the hazard management process.
6. At random, select several operating procedures and verify that these rules are being followed. Also, conduct a random sample of controllers to determine if they are carrying their operating rules, if they have the proper safety equipment, and if their radios are functioning, and verify that they do not possess any personal electronic equipment visible in the Central Control operator's desk such as cellular phones, MP3 players, pagers, etc. as per OAE rules.

RESULTS/COMMENTS

Activities:

Staff interviewed DCC Personnel and learned that OAC has been in operation since November 21, 2014. The system is 3.2 miles long, from station (Oakland Airport) to station (BART Coliseum) and employees 35 people, including managers.

1. Staff reviewed OAC's SSPP and Internal Audit Report dated 9/16/16 (performed between August and September, 2016), weekly Safety Audits, and Operator's Certification Annual Review.
2. Staff interviewed OAC Personnel and was advised that since Operations upstart, there have been not accidents/incidents on OAC system.
3. Staff inquired whether operating rules non-compliance or identified hazards are reported to SSRC committee.
4. Staff interviewed an Operator and asked to see his Rule Book and was shown a rule book that is centrally located in the Operations Room for all Operators accessibility. Staff asked the purpose of the hand-held radio on the operating console and was advised that the Operators take the hand-held when they leave the area for short periods of time. Staff confirmed the radio was fully charged. Staff interviewed the Operator regarding Emergency Procedures and the Operator was knowledgeable regarding DCC's procedures. Staff asked the Operator to go through the Lock out Tag out (LOTO) procedure and Operator was knowledgeable about the procedures and showed Staff the LOGO board including securement and log book. The Operator demonstrated the procedures utilized earlier in the day when Train1 was switched with Train 4. Train 4 went into the shop due to an electrical fault. Staff observed the operating console and noted that there were no PEDs present, including cell phones, MP3 players, pagers, etc.

Comments:

1. Staff suggested that the LOTO Log Book (which identifies who is responsible for the key regarding the LOTO securement) reflect when the key changes hands. In other words, if DJD turns the key over to SLK, the logbook will show that DJD physically turned to key over to SLK.
2. Operating Rules Non-compliance observations/tests are currently not relayed to the monthly SSRC (Safety and Security Review Committee) due to finding #1. With the implementation of Recommendation #1, the results need to be relayed to the SSRC for their monthly meetings.

Findings:

1. Staff confirmed with DCC's Internal Audit finding that currently DCC has no formal rules compliance observation procedures in their SSPP.

Recommendations:

1. Initiate a formal Rules Compliance testing program for all personnel. This will include observations, structured tests, and efficiency testing on DCC operating rules, policies and procedures. The program should indicate how often each employee will be observed (i.e. annually, quarterly, etc.), what type of tests will be performed and how the results will be tracked and analyzed and by whom.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**13-B**	Subject	Rules Compliance Operation Safety Compliance Program Inspection – CPUC Operating Inspector
Date of Review	**October 25, 2016**	Department(s)	Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Debra Dziadzio**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Rule Book
4. OAC's APM System Contractor (DCC)s Access Control Plan
5. OAC's APM Central Control Operating & Maintenance Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operation Safety Compliance Program Review – CPUC Operating Inspector

Interview OAC's APM contractor responsible for Operations Safety, observe/inspect operations, and review documentation as necessary to determine whether or not:

1. Maintenance Workers:
   a. Observe access authority provisions and procedures for workers to determine whether or not they are following the Rule Book.
   b. Interview at least two workers to evaluate their knowledge and understanding of OAC's APM contractor Rules and Procedures for Guideway Access.
2. System Operators
   a. Applicable reports, logs or records are properly prepared, maintained, and available upon request for review.
   b. Duties are performed in accordance with the Standard Operating Procedures, DCC Rule Book and Bulletins.
   c. DCC System Operators are knowledgeable in dealing and coordinating with others during incidents, accidents, and emergency response situations.

RESULTS/COMMENTS

Activities:

Staff reviewed Rule Book, Access Control Plan and various Operating and Maintenance Manuals and SOP's. Staff spoke with Operator at DCC Controls, regarding steps taken when personnel want to access

the ROW; there are 2 walks per shift. Reviewed all logs.

While at DCC Controls (in Maintenance Bldg.), Staff reviewed required rule book for Controls area, reports, logs and/or records. All were properly prepared and maintained and readily available for my inspection and review. Daily log contains all personnel working that day/shift and any pertinent information to be passed down during turnover with Operators.

Observed Operator at the controls. Good radio procedures, records/logs maintained in accordance to SOP's and Rule Book.

Asked Operator about emergency response situations. Operator went through emergency scenario and who and how he/she would coordinate with others during accidents/incidents/emergency situations.

The Operator walked Staff through entire procedure of what happens when trains are swapped, something that occurred earlier in the shift.

Comments:

Very knowledgeable Operator at the Controls.

Findings:

None

Recommendations:

none

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**14**	Subject	Facilities and Equipment Inspections
Date of Review	**October 25, 2016**	Department(s)	Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Adam Freeman**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Monthly / Weekly Facility Inspections
4. OAC's APM System Contractor (DCC)s Maintenance Management Information System MMIS
5. OAC Safety and Security Review Committee Tracker
6. Maintenance & Operation Manuals and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities Equipment Inspections and Maintenance

Conduct the necessary interviews and review appropriate records prepared during the last year to:

1. Determine if the required facilities inspections were performed.
2. Determine if inspections were properly documented and noted discrepancies were corrected in a timely manner.
3. Determine if potential hazards found during inspections are tracked from recommendation, corrective action(s), and implementation.

RESULTS/COMMENTS

Activities:

CPUC Staff interviewed BART OAC representatives responsible for Facility Maintenance & Equipment programs and procedures. Facility inspection records reviewed included the following; Daily, Weekly, Monthly, 3 Month, 6 Month, and Yearly.

Interview and records reviewed showed that facility and equipment inspection records are being completed at the required intervals and that all findings are being updated by a supervisor or lead person

once completed into the Maintenance Management Information System (MMIS), this system tracks upcoming inspections for scheduling purposes as well as providing a monthly detailed report, it also is helpful to maintenance employees by providing detailed inspection tasks, maintenance and equipment manuals and procedures.

Inspection records that were reviewed showed that discrepancies, potential hazards or safety concerns are usually being resolved through work orders and are generated through MMIS by either a maintenance employee or supervisor whenever a defect or safety concern is found while performing a preventative maintenance task, These work orders should be followed up and closed out by management staff once completed.

Comments:

Maintenance inspection records should be reformatted to allow for enough space for notes related to defects or findings. inspection record that were reviewed did not always provide a space on the form for defects that were found by maintenance staff, adding a text box for defects found on inspection record would be helpful, this text box would identify whether the defect was immediately corrected with initials of the person correcting or repairing, this would also help to determine if a work order should be generated.

Findings:

None

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**15 - A**	Subject	Maintenance Audits and Inspections –CPUC Inspector
Date of Review	**October 25, 2016**	Departments	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Adam Freeman**	Persons Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Maintenance Manual, Operations Manual and SOPs
4. OAC's APM System Contractor (DCC)s Maintenance Management Information System MMIS

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections/Vehicles -CPUC Inspector

Perform visual inspections and review records as appropriate to determine whether or not the APM vehicles have been maintained as required and all preventive and corrective maintenance practices comply with the requirements of applicable vehicle maintenance manual.

RESULTS/COMMENTS

Activities:

CPUC Staff performed visual inspection to the following vehicle; Train #4, 4.1-4.2-4.9. The following items were just some of the components that were inspected;

- Interior emergency door release mechanism
- Windows, side doors and interior passenger signage
- Passenger intercom and fire extinguishers
- Bogie assembly, hose lines/fittings, airbags, Anti-derail device, vertical/lateral shocks
- Tires & guide wheels
- Rope grip

No defects or safety concerns were found.

Records pertaining to train #4 were reviewed which included;

- Daily
- Weekly

- Monthly
- 6 month
- Yearly

Each PM inspection record is being updated into MMIS and all defects are being repaired and tracked through the work order process. PM inspection records are followed up and reviewed by supervisors for completion. Monthly PM inspection updates are provided to BART.

All maintenance employees have access to MMIS for review of maintenance bulletins with links for each maintenance procedure. O & M maintenance manuals are also readily available for review.

All updates or safety bulletins related to APM equipment are reviewed with each employee and posted for review.

Comments:

APM vehicle interior and exterior is very clean and well maintained. Emergency tow vehicles should have a PED decal posted inside operators compartment as a reminder to the operator

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**15 - B**	Subject	Maintenance Audits and Inspections – Central Control Equipment - CPUC Inspector
Date of Review	**October 27, 2016**	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Adam Freeman**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Maintenance Management Information System MMIS
4. OAC's APM System Contractor (DCC)s Maintenance Manual, Operations Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections – Central Control Equipment

Perform visual inspections and review records as appropriate to determine whether or not the APM central control equipment have been maintained as required and all preventive and corrective maintenance practices comply with applicable requirements.

RESULTS/COMMENTS

Activities:

CPUC Staff interviewed BART OAC representatives responsible for Central Control Equipment maintenance.

The Central Control Equipment inspection should be completed monthly as outlined in the maintenance plan, inspection records related to the Central Control Equipment room were not available for 4 months going back one year because they had been overlooked, this particular inspection was not being tracked in MMIS previously but is being tracked now.

Comments:

None

Findings:

1. Central Control Equipment inspections should be scheduled, completed, and tracked according to the maintenance plan that has been established.

Recommendations:

1. OAC representatives responsible for the Central Control Equipment inspections should ensure that all inspections are being scheduled, completed and tracked. BART OAC representatives did acknowledge during interviews that some facility or equipment inspections were just recently added to MMIS, whereas in the past some inspections were not, Central Control Equipment being one of them.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**15-C**	Subject	Communications System Maintenance – CPUC Inspector
Date of Review	**October 28, 2016**	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Shane Roberson** **Steve Espinal**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Maintenance Management Information System MMIS
4. OAC's APM System Contractor (DCC)s Maintenance Manual, Operations Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Communications System Maintenance

Perform visual inspections and review records as appropriate to determine whether or not the APM communications system has been maintained as required and all preventive and corrective maintenance practices comply with applicable requirements.

RESULTS/COMMENTS

Activities:

Staff interviewed OAC staff and reviewed 1 year of daily PM inspection reports of platform inspections and vehicle inspection which contained communication equipment within said inspections.

Comments:

None.

Findings:

None

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**15-D**	Subject	Data Transmission System Maintenance – CPUC Inspector
Date of Review	**October 28, 2016**	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Shane Roberson** **Steve Espinal**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Maintenance Management Information System MMIS
4. OAC's APM System Contractor (DCC)s Maintenance Manual, Operations Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Data Transmission System Maintenance

Perform visual inspections and review records as appropriate to determine whether or not the APM data transmission system has been maintained as required and all preventive and corrective maintenance practices comply with applicable requirements.

RESULTS/COMMENTS

Activities:

Staff interviewed OAC staff and reviewed 1 years monthly and 3 months of weekly PM inspection reports.

Comments:

OAC informed staff that weekly inspections of wireless communication check is not in their SOP as of the date of audit. OAC informed Staff that they had recently created the PM as a precautionary measure which was recommended by the technician of the wireless support company. OAC also informed Staff the new PM is not yet in their MMIS system. Staff suggests that the OAC staff put the new weekly PM for

wireless communication check in MMIS.

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**16**	Subject	Training and Certification Program for Employees and Contractors
Date of Review	**October 25, 2016**	Department(s)	Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Debra Dziadzio**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Will Montgomery, DCC System Safety Coordinator

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Training Documentation
4. Cal-OSHA Safety Orders
5. OAC's APM System Contractor (DCC)s Tool Box Meetings

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Program for Employees and Contractors

Interview OAC and OAC's APM System Contractor (DCC) representative(s) in charge of System Operators, Maintenance, and signal maintenance employees Certification Programs. Review appropriate records to determine whether or not:

1. The employee has completed the initial training program, refresher, and remedial training as necessary.
2. The employee has been recertified at the correct frequency and currently meets the criteria to perform his/her duties.

RESULTS/COMMENTS

Activities:

Staff reviewed training matrix utilized by DCC Management to ensure all employees have preliminary training upon employment and refresher training annually.

Staff verified that employees are recertified at the correct frequency. During the recertification process, the Training will physically observe and ensure employees meet criteria for his/her duties.

Comments:

The training matrix is in an excel spreadsheet. Staff suggests a type of flagging system be put into place

on spreadsheet to notify DCC one month prior to employee re-certification dates.

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**17**	Subject	Configuration Management and Control
Date of Review	**October 25, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAE) Leadership, Safety and Security Review Committee (SSRC), OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Rupa Shitole** **Jamie Lau**	Person(s) Contacted	Michael Forte, BART Superintendent eBART/OAC Systems Jason Eng, , BART System Safety Engineer

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP).

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Configuration Management

1. Randomly select two recent changes pertaining to the APM system at OAC during the last year to ensure configuration management documentation was properly updated to include at a minimum:
   a. As-built drawings.
   b. As-built specifications.
2. Randomly select a recent proposed modification/change to the system and verify that:
   a. A safety review/analysis of the proposed change was conducted and found to be acceptable to the District and the Manufacturer.
   b. The change is tracked via redlines of as-built drawings or updated design drawings/documents.
   c. The change was tested/inspected prior to being placed into service.
   d. O&M Manuals were updated to reflect the design change.
   e. operating procedures, preventative maintenance, and corrective procedures specific to the change have been updated.
   f. Formal notification of changes were made to Operator personnel, the District, the manufacturer, and others as appropriate.

RESULTS/COMMENTS

Activities: CPUC Staff interviewed the BART OAC representatives who are responsible for the Configuration Management program. The following information was provided and the appropriate documents were also reviewed:

1. BART OAC representatives stated that no field changes occurred during the last two years.
2. BART OAC representatives stated that no modification occurred to the system therefore there was no proposed modification/change request. BART OAC is in a process of changing/modifying

the access gates circuit. Staff reviewed Document OOM-0148 Title - DCR at Access Gate Circuit Modification. DCC creates the change request and submits it to BART OAC. BART OAC technical expert reviews and approves it. BART OAC response letter dated April 4, 2016 was reviewed. This project modification/change is still in progress. The testing related to this change has not yet been completed and is in progress.

Example: Software changes were done and all went through BART OAC review and approval. All required tests were completed and submitted to BART OAC for review and approval.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**18**	**SUBJECT**	**LOCAL, STATE, AND FEDERAL REQUIREMENTS AND EMPLOYEE SAFETY PROGRAM**
Date of Review	**OCTOBER 26, 2016**	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Jimmy Xia** **Yan Solopov**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator Michael Forte, Superintendent, eBART/OAC Systems

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. Cal-OSHA Safety Orders
4. ANSI B-77 Tramway Standards
5. OAE operations and maintenance manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Local, State, and Federal Requirements for Employee Safety Program

Conduct the necessary interviews and review appropriate records to determine if:

1. The contractor operates the OAC system in compliance with local, state, federal

and the manufactures safety requirements.

2. The contractor has implemented a safety program and training plan that ensures the safe and secure operation of the OAC system.

RESULTS/COMMENTS

Activities:

Staff interviewed OAC representatives and reviewed the following records in relation to OAC's Employee Safety Program:

1. OAC's Training Matrices for Employees
2. OAC Employee Training and Certification Plan, dated 10/12/16
3. Safety training records for two OAC employees selected at random from a list of employee names (the following lists the employees' names, job classification, the dates they successfully completed each of the training classes that comprise OAC's safety training curriculum, and information related to any classes they haven't completed yet)
    a. John Tria – Electrical Technician
        - Safety Orientation – 5/9/16
        - Near Miss Program – 5/10/16
        - Emergency Procedures – 5/24/16
        - Fire Management Systems – 9/7/16
        - Roadway Worker Protection – 5/9/16
        - Fall Protection – 6/2/16
        - Safety Data Sheets & Chemical Safety and Storage – scheduled to complete those on 10/28/16
        - Slips, Trips, Falls Bulletin – 5/24/16
        - Lock Out/Tag Out – 5/25/16
        - Safety Devices – 5/25/16
    b. Michael Jinkerson – Mechanical Technician 2
        - Safety Orientation – 3/12/15
        - Near Miss Program – 7/30/16
        - Emergency Procedures – 1/22/16
        - Fire Management Systems – 10/16/16
        - Roadway Worker Protection – 3/16/15

- Fall Protection – 3/12/15
- Safety Data Sheets – He still needs to receive training on SDS. He will be scheduled to receive this training probably early in the week of 10/31/16.
- Slips, Trips, Falls Bulletin – 7/30/16
- Lock Out/Tag Out – 5/22/15
- Chemical Safety and Storage – 3/19/16
- Safety Devices – 5/22/15

4. A sample of the most recently completed Weekly Safety Audit Check Sheets

Staff took note of the following during the interviews and records review:

1. The contractor, DCC, operates the OAC system in compliance with the local, state, and federal requirements as described in the OAC SSPP, dated 10/19/16, and the manufacturer's safety requirements as described in the OAC Operation and Maintenance Manual, dated 11/17/15.
2. DCC System Safety Coordinator performs an unannounced walking inspection of the OAC's fixed facilities throughout the entire system once a week using the Weekly Safety Audit check sheets, on which he documents the results of his inspections. During these inspections, he looks for unsafe conditions, identifiable hazards, and randomly picks employees to observe without their prior knowledge at all three OAC stations to evaluate whether they perform their work properly and safely (e.g. use all appropriate PPEs and follow all the rules and policies).
3. Most issues discovered from the Weekly Safety Audits are minor in nature and are corrected on the spot. If a noted defect can't be fixed on the spot, OAC will generate a CAP to address the defect. The Weekly Safety Audit check sheets that staff reviewed have been properly documented and all of the completed check sheets are neatly filed in a binder in chronological order. All discrepancies found from the Weekly Safety Audits have been corrected as documented on the check sheets.
4. DCC has developed the revised Employee Training and Certification Plan (ETCP) for OAC in September 2016 and implemented it on 10/12/16. The ETCP details the OAC's employee training and certification program and certification procedures for those employees whose work performance may affect the safety of passengers, employees, and/or equipment. The original training plan, which was in the OAC Operation and Maintenance Manual, doesn't have a whole lot of details related to OAC's procedures for training and certifying OAC employees. From reviewing the OAC SSPP and SSP more thoroughly in preparation for this audit, OAC found that they need to make improvements to the training plan. They added contents that were initially missing in the original training plan in the revised ETCP and made it

clearer especially for people from outside agencies such as the CPUC, so they can better understand what OAC is trying to accomplish with their ETCP.

5. OAC maintains a training matrix created using Microsoft Excel that basically documents the training statuses of all of their employees in the following four positions: system operator, station technician, mechanical technician, and electrical technician. The training matrix is kept up to date electronically on an ongoing basis. OAC is currently in the process of transferring the training matrix to a new database from an outside contractor, which will show flag alerts when an employee's training has reached its 2-year mark, so OAC can administer refresher training accordingly since their employees are required to receive refresher training every 2 years.
6. The OAC representatives discussed the OAC's training requirements for new employees and those that employees need to fulfill before they can work in any one of the four positions as mentioned above, which are detailed in the OAC ETCP.
7. OAC recently invented Safety Certification, which is comprised of a series of safety training courses as listed in Appendix 5 of the OAC ETCP, because it is called out in the OAC SSPP. In reviewing the OAC SSPP in preparation for this audit, OAC realized that they have this safety certification. They deem that it is mandatory for all staff members to take all the basic safety training courses in order to work at OAC. All of OAC's employees need to be current with those required safety training courses to be safety certified. Every employee needs to take a refresher in every safety training course every 2 years.
8. From staff's review of the training records for John Tria, it is evident that he has successfully completed his initial training in all the required safety training courses except for the SDS and Chemical Safety and Storage courses. He is scheduled to complete those courses on 10/28/16 and will be current with all safety training as of that date.
9. From staff's review of the training records for Michael Jinkerson, it is evident that he has successfully completed his initial training in all the required safety training courses except for the SDS course. He will be scheduled to receive the SDS training probably early in the week of 10/31/16 and be current with all safety training as of that date.
10. OAC's training is a work in progress. OAC has 21 different shifts in a week. They are trying to complete all the applicable training for their employees and get every employee up to speed with training.
11. At the beginning of every week, OAC has the weekly safety toolbox meetings attended by all of OAC's employees, where the DCC System Safety Coordinator will present a new safety-related topic during each weekly meeting. Everyone present at these meetings can bring up any issues regarding safety around the OAC facilities. Furthermore, the DCC System Safety Coordinator holds safety briefings with OAC

employees at the beginning of all three shifts every day. He discusses random safety topics that he obtains from the OSHA website during those meetings.

12. In light of the above, staff determined that DCC has implemented an adequate employee safety program and training plan that ensures the safety of the OAC employees and system during the performance of their work duties at OAC facilities.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**19**	**SUBJECT**	**HAZARDOUS MATERIALS PROGRAMS**
Date of Review	**OCTOBER 25, 2016**	Department(s)	OAC's APM System Contractor (DCC), OAE Environmental
Reviewers/ Inspectors	**Jimmy Xia** **Yan Solopov**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager Will Montgomery, DCC System Safety Coordinator Michael Forte, Superintendent, eBART/OAC Systems

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's Hazard Communications Program and the Blood borne Pathogen CBT Program
4. OAC's APM System Contractor (DCC)s Hazardous Communication Program

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazardous Materials Programs

1. Select at random 2 DCC employees responsible for handling hazardous materials and verify that they have received specific training for reporting requirements, product release or spill, and the response and cleanup of spill incidents.
2. Verify that hazardous materials discharge/spill reports for incidents that occurred during the past year have been prepared and filed.
3. Verify all Safety Data Sheets (SDS) are available to all personnel who handle hazardous materials.

RESULTS/COMMENTS

Activities:

Staff interviewed OAC representatives and reviewed the following records in relation to OAC's Hazardous Materials Program:

1. Relevant training records for the following two OAC employees selected at random from a list of employee names
    a. Tim Pfalzer – has received the SDS training on 3/15/16 and the Chemical Safety and Storage training on 3/17/16
    b. Octavia Hill – has received both the SDS and Chemical Safety and Storage training on 3/19/16
2. DCC Chemical Safety and Storage PowerPoint presentation
3. DCC SDS PowerPoint presentation
4. A blank OAC Discharge Notification Form

Staff took note of the following during the interviews and records review:

1. All OAC employees are required to receive training on all the safety training topics including Chemical Safety and Storage and SDS as listed in OAC Employee Training and Certification Plan, Appendix 5, in order to be safety certified and work at OAC.
2. OAC representatives showed staff the most recent version of the PowerPoint presentations for OAC's Chemical Safety and Storage training and SDS training, respectively, on projection, and ran through all the slides in both presentations with staff briefly. The Chemical Safety and Storage training and SDS training are provided to employees by means of going over the PowerPoint presentations with them and giving them written tests on these subjects. Staff determined that the training adequately addressed the areas of reporting requirements, product release or spill, and the response and cleanup of spill incidents, which are covered in the Chemical Safety and Storage PowerPoint presentation.
3. Based on staff's review of the documents listed as #1 and #2 under the Activities section above and the above information, staff verified that the two OAC employees that staff randomly selected have received specific training for reporting requirements, product release or spill, and the response and cleanup of spill incidents.
4. Because OAC is a customer of Safety Clean, a company/vendor chosen by OAC that picks up and disposes of OAC's hazardous wastes and recyclable material, OAC gets 24-hour spill response from Clean Harbors, which is the parent company of Safety Clean. When OAC's 55 gallon steel drums get filled with used oily or greasy

rags from their maintenance work, they will call Safety Clean to come to recycle them.

5. OAC has not experienced any hazardous spills requiring reporting during the past year. As such, no hazardous materials discharge/spill reports exist. In the event of a hazardous spill, the OAC employee(s) on the site would notify the shift lead, who in turn will notify the OAC Central Control. Then, Central Control would call Safety Clean or Clean Harbors to address the hazardous spill incident. OAC will also fill out the Discharge Notification Form in the event of a hazardous spill.
6. All of OAC's SDS's are available for review at all times to all OAC employees in hard copy form. OAC has collected hard copies of all of their SDS's in one big binder and they have a total of three such binders. Each binder contains a table of contents to show the substances alphabetically and all the SDS's are organized alphabetically in the binder with sections dividing letters to make it easier for employees to look through. One of these binders was presented to staff for visual verification of their existence at the OAC facilities. OAC has 3 stations including the Airport station, Coliseum station, and Doolittle station, which is where the maintenance facility is at. A binder containing all of OAC's SDS's is available in the SDS binder holder on the wall near where the substances are kept at each of the three stations. OAC doesn't have electronic or online version of their SDS's at this time, because they don't allow their employees to use electronic devices such as their cellphones during work.
7. OAC has used the same chemicals and hasn't added new chemicals since the beginning of their operation. The existing SDS binder is completely up to date as of the date of this checklist review.
8. If OAC has a new substance that comes on site, the DCC System Safety Coordinator would get the approved SDS for the substance, add that to a weekly toolbox meeting where he will review the new SDS with all OAC employees to make sure everyone is aware of the new substance onsite and understands its SDS, and then he would add the SDS to every SDS binder for everyone to have access to. OAC doesn't approve new chemicals for use at the facilities at the weekly toolbox meetings. They will certify new chemicals before they would even procure them for use at the facilities.

Comments:

None

Findings:

None

Recommendations:

None

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**20**	Subject	Drug and Alcohol Program
Date of Review	**October 26, 2016**	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Colleen Sullivan**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Corporate Drug and Alcohol Policy

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Drug and Alcohol Program

Conduct the necessary interviews and review appropriate records prepared during the last year to:

1. Confirm that the number of employees in safety sensitive positions who tested positive or refused to take the test during the past year was accurately reported.
2. Confirm DCC has a policy in place for managing the use of over-the-counter drugs.
3. Randomly select at least one safety sensitive employees who tested positive for drugs or alcohol in the past year and review the appropriate records to determine whether or not:
    a. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP).
    b. The employee was administered a return-to-duty test with verified negative results.
    c. Follow-up testing was performed as directed by the SAP according to the required follow-up testing frequencies of the reference criteria after the employee has returned to duty.
    d. Consequences for repeat offenders were carried out as required by the reference criteria.

RESULTS/COMMENTS

Activities:

Drug and alcohol tests were reviewed for the years 2015. DCC has a staff of 35 safety sensitive employees as of October 26, 2016. The OAC's APM System Contractor (DCC)s Corporate Drug and alcohol policy states that 25% of the workforce population will be randomly chosen to be tested for drugs, and 10% will be randomly chosen for alcohol each year. Employees are subject to random testing for drugs and/or alcohol in accordance with and subject to federal, state, and local laws and regulations.

2015

Nine drug and six alcohol tests were administered. These tests are tracked by social security numbers

and employee identification numbers. There were no positive results and no employee on refused to take the test.

DCC does have a policy in place for managing the use of over-the-counter drugs. This policy is outlined in the OAC's APM System Contractor (DCC)s Corporate Drug and Alcohol Policy. It is the responsibility of the employee, when selecting over-the-counter medication, to read all warning labels before selecting it for use while working. Medications whose labels indicate they may affect mental function, motor skills, or judgment should not be selected. The employee has the responsibility to refrain from using any over-the-counter medication that causes performance altering side effects, whether or not the label warns of them. For the safety of the employee and the employees around him, the employee must notify a Human Resources (HR) Representative regarding any medication he may be on prior to beginning work. Subsequently, the HR Representative sends the employee to DCC's clinic for evaluation. This evaluation determines if over-the-counter medication the employee is taking makes him fit or unfit for his particular job duties.

DCC has a zero tolerance policy for the usage of drugs and alcohol. If an employee's drug or alcohol test comes back positive, he is immediately dismissed from his job. Also, if any employee does not agree to take the drug or alcohol test, he is immediately dismissed from his job.

Comments:

None.

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**21**	**SUBJECT**	**PROCUREMENT PROCESS**
Date of Review	OCTOBER 26, 2016	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Colleen Sullivan**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Procurement Policy

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Procurement Process

Conduct the necessary interviews and review appropriate records prepared during the last year to:

1. Verify DCC personnel are following the Procurement Policy to ensure that safety issues and concerns are addressed in the procurement process.
2. Adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the APM system environment.
3. Adequate procedures are in place to safely deal with defective or deficient equipment in the event these are introduced to the APM system at OAC.

RESULTS/COMMENTS

Activities:

Staff interviewed DCC staff and reviewed documentation/records related to the following:

- SSPP
- MSDS
- Tool calibration and inventory

CPUC staff inspected tools used by DCC technicians which included digital multimeters, torque wrenches, and various other electronic testing instruments for proper calibration dates. Tool calibration is being managed appropriately; tool inventory is sufficient allowing technicians to always have the appropriate tools available as needed.

New and/or replacement chemical data sheets are available to review in the MSDS binders; they are properly updated and made available to review to all employees in a central location as needed. Disposing and recycling of hazardous materials is being identified and properly labeled, as well as proper distribution of material. Chemicals are being properly stored in labeled metal flammable lockers throughout the shop floor as well as inventory storage locations.

Based on the records and documentation reviewed and interviews conducted with staff, DCC is properly managing the procurement of parts, materials, and services provided by outside contractors in accordance with the laws and regulations as well as what is outlined in DCC's procurement policy and procedures.

Comments:

None.

Findings:

None.

Recommendations:

None.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**22**	Subject	Hours of Service: Operators and Maintenance, and Track
Date of Review	**October 27, 2016**	Department(s)	OAC's APM System Contractor (DCC)
Reviewers/ Inspectors	**Shane Roberson** **Colleen Sullivan**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. BART OAC System Safety Program Plan (SSPP)
2. OAC's APM Time Cards

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hours of Service: Safety Sensitive Employees

1. Randomly select three employees. Review the selected employees' "time on duty" records prepared during a three-month period within the past 12 months and determine if:
   a. They complied with the requirement that employees in safety-sensitive positions may not remain on duty for more than 12 consecutive hours, or for more than 12 hours spread over a period of 16 hours, and;
   b. The initial on duty status for each of these employees only began after eight consecutive hours off duty.

RESULTS/COMMENTS

Activities:

Staff interviewed OAC staff and reviewed 3 months of records for 3 employees.

Comments:

1. Staff noted that within OAC's time tracing system there is no way to track off duty hours. The OAC staff recognized this and began implementing a method to track off duty hours on November 3, 2016.

Findings:

1. Staff noted no exceptions in the records of the three employees reviewed. However, OAC declared to not having hours of service program in place. Therefore, no one from top down has been formally trained on nor do they track hours of service. Staff noted since OAC's found out about hours of service, OAC has completed a draft to add to their SSPP.

Recommendations:

1. Staff recommends that OAC finish and implement hours of service program.

2016 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR

BART OAKLAND AIRPORT CONNECTOR

Checklist No.	**23**	Subject	Contractor Safety Program
Date of Review	**October 27, 2016**	Department(s)	BAY AREA RAPID TRANSIT(OAC) Leadership, Safety and Security Review Committee (SSRC), OAE's APM System Contractor (DCC)
Reviewers/ Inspectors	**Adam Freeman** **Debra Dziadzio**	Person(s) Contacted	Jacob Fagan, DCC Operations & Maintenance Manager

REFERENCE CRITERIA

1. General Order 164-D
2. BART OAC System Safety Program Plan (SSPP)
3. OAC's APM System Contractor (DCC)s Access Control Plan

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Contractor Safety Program

Interview the OAC representative in charge of the Contractor Safety Program and review OAE's internal safety audit requirements, audit reports and other records to determine if:

1. OAC/DCC's procedures and practices clearly identify, for the contractors and OAC managers, that OAE is in charge and that its contractors and their employees must comply with all established safety rules and procedures and;
2. OAC/DCC procedures establish the range of activities for its monitoring and enforcement of contractor's and contractor employee's compliance with the safety requirements by regular unscheduled and unannounced compliance checks as well as by scheduled periodic audits and inspections.
3. OAC/DCC's monitoring and enforcement activities are properly recorded, distributed, and filed.

RESULTS/COMMENTS

<u>Activities:</u>

CPUC Staff interviewed BART's OAC representatives responsible for the contractor's compliance program to determine if the program complies with all safety rules and policies.

Contractor safety program records and procedures were reviewed, contractor's safety policy and procedures binder included names of contractors who had received instructions and/or presentations related to safety policies and procedures, RWP training included a power point presentation. Contractors are never allowed on the premises unaccompanied; they always have an OAC escort while working to provide protection of workmen.

Comments:

None

Findings:

None

Recommendations:

None