2019

TRIENNIAL SAFETY REVIEW OF SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN

RAIL TRANSIT SAFETY BRANCH
RAIL SAFETY DIVISION
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102

Final Report
January 20, 2021

Daren Gilbert, Program Manager
Rail Transit Safety Branch
Rail Safety Division

2019 TRIENNIAL SAFETY REVIEW OF
SAN FRANCISCO INTERNATIONAL AIRPORT - AIRTRAIN

ACKNOWLEDGEMENT

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

Daren Gilbert – Program Manager

Stephen Artus – Program and Project Supervisor

Mike Borer – Supervisor, RTOSS

Steve Espinal – Senior Utilities Engineer Supervisor

Jamie Lau – Utilities Engineer, CPUC Representative to AirTrain

David (Shane) Roberson – Assoc. Signal and Train Control Inspector

Michael Rose – Associate Transportation Ops Inspector

Sal Herrera - Associate Railroad Track Inspector

Richard Fernandez – Associate Transportation Ops Inspector

James Matus – Associate Railroad Equipment Inspector

Eric Madero – Associate Signal and Train Control Inspector

Claudia Lam – Utilities Engineer

Ainsley Kung – Utilities Engineer

Daniel Kwok – Utilities Engineer

Rupa Shitole – Utilities Engineer

Madeline Ocampo – Utilities Engineer

Arun Mehta – Utilities Engineer

Yan Solopov – Public Utilities Regulatory Analyst

Patrick Donnelly – Public Utilities Regulatory Analyst

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

The California Public Utilities Commission's Safety and Enforcement Division (now Rail Safety Division), Rail Transit Safety Branch (RTSB) staff (Staff) conducted an on-site system safety program review of the San Francisco International Airport AirTrain (AirTrain) in June of 2019. The review focused on verifying AirTrain's implementation of its System Safety Program Plan (SSPP), as well as AirTrain's compliance with State and Federal rules and regulations. This report details staff's investigatory actions, findings, and recommendations. The review revealed areas of non-compliance, as discussed below.

An opening conference meeting between AirTrain personnel, representatives and Staff immediately preceded the initial on-site review activities, beginning Monday, June 10, 2019. The review continued through June 14, 2019. On January 24, 2020, Staff held a post-review conference meeting, where Staff provided AirTrain personnel with a summary of all findings. Staff identified 13 findings of non-compliance. From these findings, Staff issued 13 recommendations for corrective actions.

Section 2 (Introduction) of this report provides a summary of the authority under which the California Public Utilities Commission (CPUC or Commission) performs the triennial reviews and presents a brief chronology of the review. Section 3 (Background) includes a description of the AirTrain system. Section 4 (Review Procedure) explains the procedures used by Staff during the System Safety Review. Section 5 (Findings and Recommendations) outlines Staff's 13 findings of non-compliance and 13 recommendations, organized by source checklist numbers. Finally, the Appendices include a list of abbreviations and acronyms used in the report and checklists, tabulated findings and recommendations, the complete set of the 32 review checklists with summaries of all review activities, and the original comments, findings, and recommendations.

This report reflects Staff's triennial safety review of AirTrain. The AirTrain on-site triennial security review report is contained in a separate Report and is brought before the Commission for approval in a separate Resolution. [1]

---

[1] Staff's security review and report, "2019 Triennial Security Review of San Francisco International Airport AirTrain" is being brought before the Commission concurrently in Resolution ST-234.

2. INTRODUCTION

The Commission General Order (GO) 164-E, *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration (FTA) Rule, Title 49 Code of Federal Regulations (CFR) Part 659, *Rail Fixed Guideway Systems: State Safety Oversight*, require the designated State Safety Oversight Agencies to perform a review of each rail transit agency's system safety program plans a minimum once every three years. The triennial review verifies compliance and evaluates the effectiveness of each rail transit agency's System Safety Program Plan to assess the level of compliance with GO 164-E and other Commission and regulatory safety requirements. This is the seventh triennial safety review of AirTrain. The previous review occurred in August 2016.

On May 16, 2019, Staff advised the AirTrain Manager that the Commission's safety review was scheduled to occur June 10–June 14, 2019. The letter included 32 checklists that served as the basis for the review. The checklists, included in Appendix C, focus primarily on verifying the effective implementation of AirTrain's SSPP.

Staff conducted an opening conference on June 10, 2019, with the AirTrain Manager, Assistant Manager, Chief Operating Officer, and Operating and Maintenance personnel.

Staff conducted the on-site system safety inspections and records review from June 10-14, 2019. At the conclusion of each review activity, staff provided AirTrain personnel with a summary of the preliminary findings and discussed any potential recommendations for corrective action.

On January 24, 2020, following the triennial safety review's conclusion, Staff conducted a post-review exit meeting with AirTrain Manager, AirTrain Assistant Manager and AirTrain Operating and Maintenance personnel. Staff provided the attendees with a summary of the findings of non-compliance derived from the 32 checklists used to guide the review and discussed the need for corrective actions where applicable.

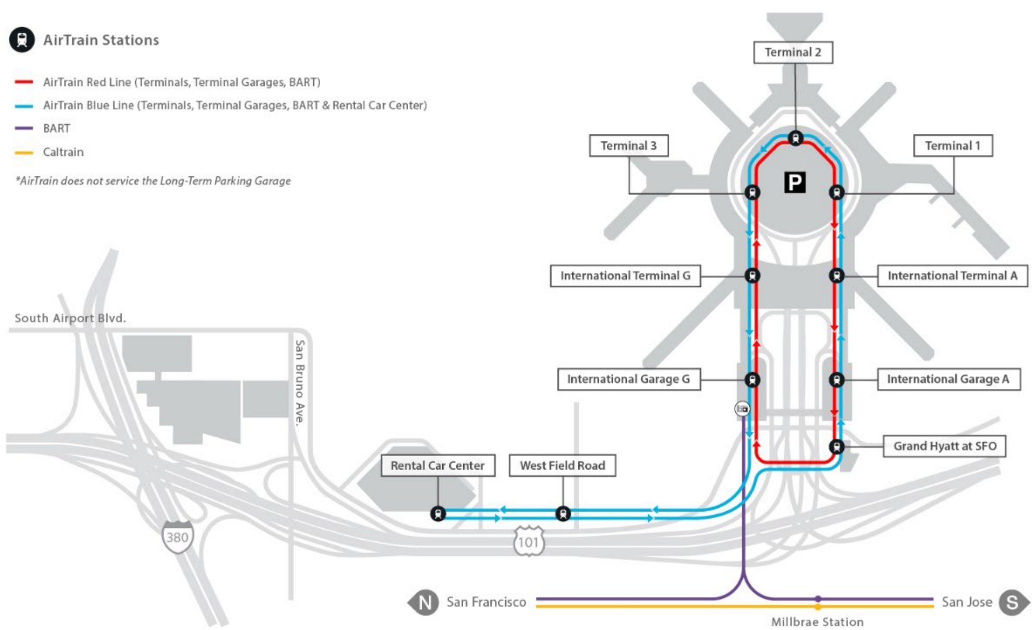
3. BACKGROUND

AirTrain at the San Francisco International Airport began operation on February 24, 2003, as a six-mile system. It operates 24 hours every day, providing free service throughout the San Francisco International Airport (SFIA). The SFIA AirTrain was originally contracted to Bombardier as a design-build-operate-maintain project. The system is owned by the San Francisco Airports Commission and currently operated and maintained by Bombardier.

With a fleet of 38 (thirty-eight) CX-100 people movers, the six-mile system serves nine stations connecting all the airport's terminals, parking garages, and the Bay Area Rapid Transit (BART) Airport Station with the Rental Car Center.

The AirTrain system operates two lines. These are:

- Blue Line – all terminals, garages, BART Station, and Rental Car Center
- Red Line – all terminals, garages, and the BART Station.



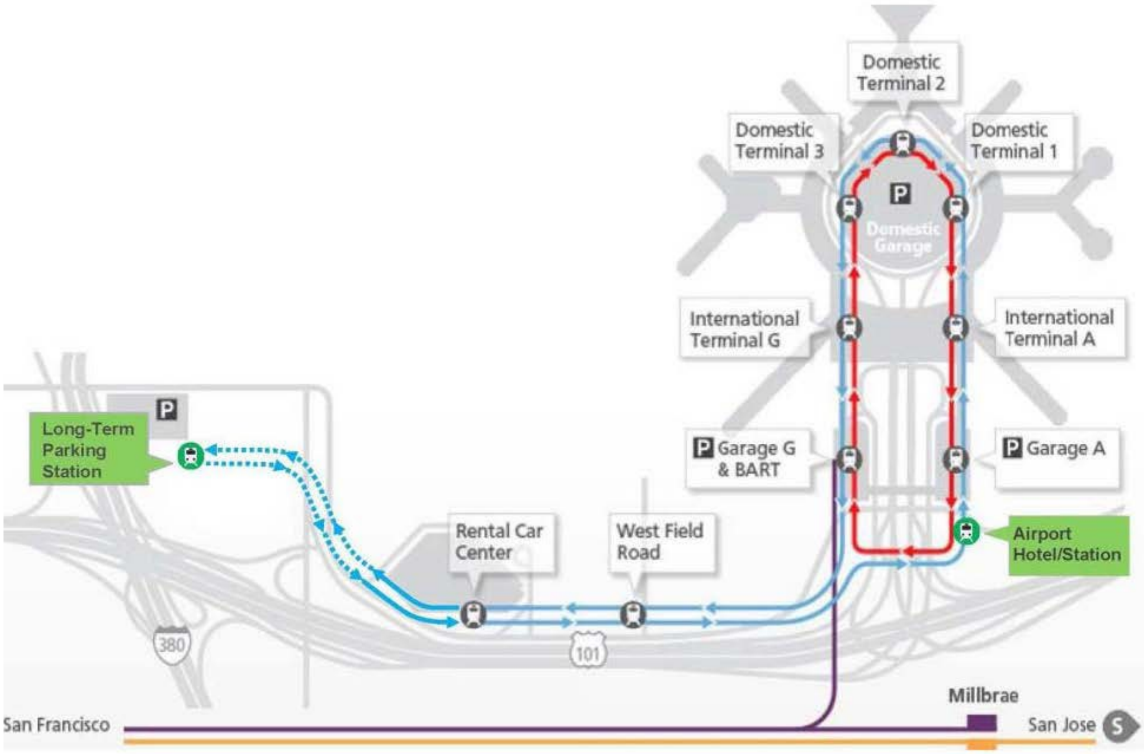
System Expansions and Capital Projects

SFO AirTrain Extension and Improvement Program

The San Francisco International Airport (SFO) AirTrain Extension and Improvements Program (Project) will expand the existing AirTrain System to a new Long-Term Parking (LTP) Garage 2 and add an additional in-line Hotel Station serving a future hotel. The project is currently being constructed and is nearing completion.

The Project features will include the following:

- Upgrade to LOS train to wayside signaling and communications, including new single mode fiber optic backbone network, beginning with retrofit of the existing system
- Field retrofit of 38 existing vehicles and one (1) Maintenance Recovery Vehicle to LOS technology. The retrofit involves removing the ATC antennas which are presently located under car and replacing them with roof mounted antennas which interact with new LOS antennas located throughout the system. The vehicle roof antennas will interface with the ATC by means of a new Mobile Data Radio.
- Central Control upgrade, including EBI Screen 1500 technology.
- 2,000 ft. guideway extension to a new LTP #2 Garage, including civil design services for the guideway fixed facilities and design and supply of the guidebeam.
- Two stations: LTP Station at Lot DD and Hotel Station.
- Four (4) additional guideway crossover switches.
- Additional traction power system for the 2,000 ft. extension, including a PDS substation, switchgear, power and grounding rails, and additional UPS equipment.
- Barrier wall, platform screen door, and station audio communications systems for the LTP Station and Hotel Station.
- Three (3) Innovia APM CX-100 vehicles.



Status of 2016 AirTrain Triennial Safety Review Recommendations

Staff performed the previous triennial on-site safety review in 2016. Staff utilized 27 separate checklists to guide that review and made 8 recommendations for corrective actions.

Commission Resolution ST-198, adopted February 9, 2017, granted approval of Staff's final report and its recommendations, ordering AirTrain to develop appropriate corrective action plans and an implementation schedule. Resolution ST-198 also ordered AirTrain to submit monthly status reports tracking the implementation of these corrective actions through full completion.

AirTrain developed and submitted corrective action plans and an implementation schedule to fulfill each of the recommendations. All of the 2016 Triennial Safety Review Audit Corrective Action Plans (CAP's) have been corrected, field verified by Staff, and closed out.

4. SYSTEM SAFETY REVIEW PROCEDURE

Staff conducted the 2019 review in accordance with the Rail Transit Safety Branch Procedure RTSB-4, *Procedure for Performing Triennial On-Site Safety and Security Reviews of Rail Transit Systems*. Staff developed thirty-two (32) checklists to cover various aspects of system safety responsibilities based on Commission and FTA requirements, the AirTrain SSPP, safety related AirTrain documents, and staff knowledge of the AirTrain system. A list of the 32 checklists is contained in Appendix C. The completed checklists are included in Appendix D of this report.

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

- Discussions with AirTrain Management and personnel from its contractor Bombardier;
- Reviews of procedures and records;
- Observations of operations and maintenance activities;
- Interviews with rank and file employees; and
- Inspections and measurements of equipment and infrastructure.

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

5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors who participated in the On-Site System Safety Review identified 13 findings of non-compliance and made 13 recommendations to improve AirTrain's system safety program. Review findings identify areas where changes should be made to adhere to their SSPP and improve the AirTrain system safety program. The review results are derived from activities observed, documents reviewed, issues discussed with management, and field inspections. These findings and recommendations are listed below and are grouped by checklist number.

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

   No findings of non-compliance, no recommendations.

2. **SSPP Goals and Objectives**

   No findings of non-compliance, no recommendations.

   Comments:

   1. Staff found the BTH monthly report to AAO lacks reporting of BTH employee rule violations, which AAO should be aware of as BTH is hired as the AirTrain Operator. Staff suggests the report should include such information.

3. **Overview of Management Structure**

   No findings of non-compliance, no recommendations.

4. **SSPP Control and Update Procedure**

   No findings of non-compliance, no recommendations.

5. **SSPP Implementation Activities and Responsibilities**

   No findings of non-compliance, no recommendations.

6. **Hazard Management Process**

No findings of non-compliance, no recommendations.

7. **System Modification**

No findings of non-compliance, no recommendations.

8. **Safety and Security Certification**

No findings of non-compliance, no recommendations.

Comments:

1. Staff noted dates in SSCP does not reflect current project timeline. AirTrain is in progress of updating SSCP with updated dates for the phases. PMSS Engineer states that it has been discussed with CPUC and will be addressed with the upcoming SSCP revision.
2. Staff notes that the language in SSPP Section 5.2 should be changed to better reflect the nature of the meeting and is not actually a report.
3. Staff notes AirTrain should add in Partnering Meetings to SSCP to reflect current project practices.
4. Staff notes AirTrain should add in subsection in Excel document to include approval process and who verifies Design Conformance.

9. **Safety Data Collection and Analysis**

No findings of non-compliance, no recommendations.

10. **Event Investigations**

No findings of non-compliance, no recommendations.

11. **Emergency Management Program**

No findings of non-compliance, no recommendations

12. **Internal Safety Audits**

Findings:

1. CPUC auditors were unable to determine if field activities were performed by SFO AirTrain in ISA reports. Activities performed were not fully documented in response to ISA checklist Method of Verification.

Comments:

1. A discrepancy was noted in the 2016 report regarding "Person's Contacted" field being blank; however, this was not indicative of a systematic issue, as it did not reoccur in the more recent reports
2. AirTrain ISA report "Persons Contacted" field should include respective positions titles for persons involved
3. SFO AirTrain ISA report activities should better align with criteria in "Characteristics and Method of Verification".
4. The following discrepancies were noted regarding SSPP Section 7 – ISA Process:
   - "AirTrain Operator's Internal Safety Audit Procedures" does not exist, as verified by AAO Assistant Manager. AAO Assistant Manager states reference will be deleted in next revision of SSPP
   - "Airtrain Operator's Safety Coordinator" position does not exist, as verified by AAO Assistant Manager. AAO Assistant Manager states position will be deleted in next revision of SSPP
   - Section 7.3 states: "twenty-four" elements to be checked in the ISA process, AAO Assist manager verified this was a typo and will be corrected in next revision of SSPP.

Recommendations:

1. SFO AirTrain should document AAO field inspections performed during the ISSA process in the ISSA report.

13-A**. <u>Operating Rules Compliance: Observation and Enforcement</u>**

Findings:

1. The Primary Inspection Form has missing PED Pass/Fail observations, and missing Employee Radio Number. The System Inspection/Audit Forms reviewed are missing Signatures and Times. October 2018 All Employees Meeting missing required employee signatures. 2019 All-Employees Meeting Folder is labeled 2017 and is unorganized.

Recommendations:

1. Bombardier should ensure all documentation is filled out completely and properly and that the files are organized.

13-B. **Rules Compliance: Operation Safety Compliance**

No findings of non-compliance, no recommendations.

Comments:

1. The Maintenance Shop was very clean and orderly. Employees feel empowered and told CPUC Staff, the AirTrain Maintenance Shop is the safest environment they have worked in.

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

No findings of non-compliance, no recommendations.

Comments:

1. Ensure all employees understand and follow the ten-minute clock in rule and Human Resources and Management reviews any 12-hour discrepancy before employee is paid for work performed.

13-D. **Rules Compliance: Rules, SOP, Manuals**

No findings of non-compliance, no recommendations.

13-E. **Rules Compliance: Operations Control Center**

Findings:

1. CPUC Staff found missing Time In and Time Out entries for the Guideway Access Log on multiple days throughout October 2018.

Recommendations:

1. Bombardier Operators should accurately fill out the Guideway Access Form. Management should ensure Operators documentation is correct and employees are safely accounted for before restoring guideway power.

14-A. **Facilities and Station Inspections: Non-Revenue Facilities, Maintenance Facilities, and Maintenance Equipment**

Findings:

1. Incomplete Weekly inspection forms. BTH Staff are not completely filling out forms, such as the "inspected by" is missing initials, some "Ok /not Ok" box are not checked off, the "completed description box" and "Date" of completion not filled out, unless the issue was fixed during the inspection.

   An identified hazard was not tracked or placed in the Maximo tracking system. There are no records to show if the hazard is still present or if it has been fixed. Inspection form 04/10/2019 by D. Helms "exposed electrical wires" 1st floor adjacent to 120 POS.

   Potential hazards or defects are not being tracked on inspection forms. Section is left blank. However, they are tracking directly into the Maximo system.

2. The Maintenance Recovery Vehicle (**MRV**) MRV200=90-day or the MRV 500=annual inspections are not being performed per required intervals for the past three years.
   2017=2 inspections
   2018= 1 inspection
   2019= 2 (on schedule) 01/05/19 & 03/08/19

Comments:

1. Airtrain personnel should revise forms to indicate that hazards and corrections are being tracked through Maximo and remove all unused columns on the form.
2. Airtrain personnel should assign someone to review forms weekly or monthly making sure that all the correct data is being tracked and no important information is being missed and to ensure that paperwork has no errors.

Recommendations:

1. Airtrain personnel should fill out all forms completely and sign in appropriate boxes on forms.
2. Airtrain personnel should ensure that all Maintenance equipment is being inspected as per scheduled required intervals.

14-B. **<u>Facilities and Equipment Inspections: Stations and Emergency Equipment</u>**

No findings of non-compliance, no recommendations.

Comments:

1. All forms need to be completely filled out with signatures provided. All hazards identified need verification of completed repair within a timely manner.
2. AirTrain personnel should revise forms to indicate that hazards and corrections are being tracked through Maximo.
3. AirTrain personnel should have someone review forms weekly and monthly making sure that all the correct data is being tracked and no important information is being missed and to ensure that paperwork has no errors. Add any roll-up doors to monthly inspections.

14-C. **<u>Facilities and Equipment Inspections: Bridges, Tunnels, and Aerial Structures</u>**

Findings:

1. At the time of the audit, Staff found that AirTrain did not have a guideway structure inspection and maintenance procedure, nor have they inspected the structures within 24 months per the recommendation in the 2014 assessment.
2. The 2014 assessment did not recommend a timeline for completing the repair for the conditions found. It is unclear to Staff whether these conditions were corrected in a timely manner. Furthermore, Location C repair was not documented with an Inspector Daily Report. Therefore, Staff was not able to confirm the date of repair, or who performed the repair.

Comments:

1. The 2014 structural assessment lacks a master map showing the area inspected relative to the entire AirTrain system. Staff was unable to tell if the assessment covered the entire or partial system. For the upcoming assessment report, Staff suggests that AirTrain include a map of the entire system, with detailed cutout maps identified. Staff also suggest AirTrain to assign unique identification for each structure for inventory tracking.

2. APTA RT-FS-S-001-02 was revised in 2016. If AirTrain were to adopt APTA, it should use the latest version, APTA RT-FS-S-001-02 Revision 1.

Recommendations:

1. Following the recommendations of the structural engineer who authored the "San Francisco International Airport AirTrain Guideway Structural Condition Assessment," and suggested APTA RT-FS-S-001-002 Rev 1 standard, develop a structural inspection and maintenance procedure including but not limited to the following:
    a. "…information on the organization of the inspection program, inspection policies, procedures for quality control and quality assurance, inspection procedures, and scheduling. The structural inspection manual should also address requirements for post-earthquake inspections." – Item 1 of Additional Periodic Inspections, 2014 AirTrain Guideway Structural Assessment.
    b. A visual inspection of the guideway structure every 24 months, including procedures for follow-up inspections performed by qualified engineers of sites with possible significant deteriorations.
    c. A written summary report following each inspection documenting the significant findings with rated severity, recommended repair, and results of follow-up inspections.
    d. A computerized database to document the inspections and the locations of the significant items, recommended repair and completion date, repair status, and actual repair completion date. Creating such a database per APTA RT-FS-S-001-02 Rev 1, Section 3.2.1 and 4.4. Assign designated personnel to maintain this database.
    e. "On an annual basis, a walk-through inspection of the system should be performed using the walking platforms to identify the presence of debris or severe ponding of water. Debris, including any plant growth on the guideway structure, should be cleared from the guideway structure and areas of significant water ponding should be addressed." – Item 5 of Additional Periodic Inspections, 2014 AirTrain Guideway Structural Assessment,

f. Reference the structural inspection and maintenance procedure in AirTrain's SSPP, Section 8 and Section 9.

2. Perform a guideway structural inspection as soon as possible. The last inspection was done in 2014. The inspection report recommends an inspection frequency of 24 months for bridge structures. The last inspection was more than 24 months at the time of audit.

14-D. **<u>Facilities and Equipment Inspections: Measurement and Testing Instrumentation</u>**

No findings of non-compliance, no recommendations.

15-A. **<u>Maintenance Audits and Inspections – Fixed Guideway Revenue Vehicles</u>**

Findings:

1. Preventative maintenance intervals for 15K inspections are overdue per mileage acquired on vehicles for car #'s 9, 15, and 21. (2017-2018)
2. Records for required 90K inspections missing for car #'s 9, 15, and 21. (2017-2018).

Comments:

1. Bi-daily inspections need to be done closer to the required inspection dates.

Recommendations:

1. The required 15K inspections must be met within their proper timeframes for proper maintenance of the vehicles.
2. All documentation and records of these required inspections must be maintained in a manner to where they are readily accessible and reviewable. All records need to be kept on file.

15-B. **<u>Maintenance Audits and Inspections – Signal System, Data Transmission System, Vital Relay Maintenance, & Traction Power System</u>**

Findings:

1. CPUC noted Air Train personnel placed stickers over manufacturers specifications and identification tags.
2. Yearly circuit breaker testing was not conducted yearly as dictated by AirTrain procedure. No circuit breaker testing was conducted in either 2017 or 2018.

Meggar testing, which should have been done biennially, was not conducted in 2017 or 2018.

Recommendations:

1. ID tags give vital information (pick up and drop away values set by manufacturers) for inspectors testing vital relays. Air Train must remove, discard and/or relocate sticker as to not obstruct view of manufacture label or ability to visually inspect relay contacts.
2. AirTrain and its contractor must conduct both circuit breaker and Meggar testing as dictated by Airtrain procedures. The procedures dictate circuit breaker testing yearly and Meggar testing biennially.

15-C. **<u>Maintenance Audits and Inspections – Fixed Guideway</u>**

Findings:

None.

Comments:

1. Every attempt should be made to conduct inspections on the established intervals and the use of the float period (example…90-day inspections have a float period that allows up to 101 days) should only be used for emergencies, examples...short staff due to holiday/vacation schedules, work related emergencies affecting the ability to complete on the scheduled day.
2. CPUC Staff has concerns with PM schedules on switch maintenance that AirTrain and its contractor have established. Bombardier should determine the appropriate inspection frequency and inspect each switch on regular 45- or 90-day inspection interval and develop an inspection schedule that it follows based on the analysis and decisions made in setting up the program.

Recommendations:

None.

16. **<u>Training and Certification Programs for Employees and Contractors</u>**

Findings:

1. AirTrain does not provide Personal Electronic Device (PED) Training or Refresher training that meets the requirement as outlined in CPUC General Order 172 Section 5.3.

Recommendations:

1. AirTrain must notify and instruct their employees on the provisions of AirTrain's PED Zero-Tolerance policy and program regarding electronic device use during the initial training. AirTrain shall provide a refresher course on its zero-tolerance policy and program at least every two years as part of their re-certification program.

17. **<u>Configuration Management and Control</u>**

No findings of non-compliance, no recommendations.

18. **<u>Local, State, and Federal Requirements</u>**

No findings of non-compliance, no recommendations.

19. **<u>Hazardous Materials Program</u>**

Findings:

1. Staff learned that BTH recently changed the method in which they store training records resulting in some records of employees only having dates for completed training rather than a viewable certificate. This results in an inability to support the date entered into the database with any actual documentation.

Recommendations:

1. Staff recommends that BTH keep at minimum the most up to date certificate of required training for all employees.

20. **<u>Drug and Alcohol Program</u>**

No findings of non-compliance, no recommendations.

21. **<u>Procurement Process</u>**

No findings of non-compliance, no recommendations.

22. **<u>GO 172 - Personal Electronic Device Use / In-Cab Cameras</u>**

No findings of non-compliance, no recommendations.

23. **<u>GO 175-A Rules sand Regulations Governing Roadway Worker Protection Provided by RTA and Fixed Guideway Systems</u>**

No findings of non-compliance, no recommendations.

APPENDICES

A. Abbreviations and Acronym List
B. 2019 AirTrain Safety Review Checklist Index
C. 2019 AirTrain Safety Review Checklists

APPENDIX A

ABBREVIATION and ACRONYM LIST

Abbreviation / Acronym	Description
AEM	All Employee Meeting
APM	Automatic People Mover
ATC	Automatic Train Control
ATO	Automatic Train Operation
ATP	Automatic Train Protection
BTH	Bombardier Transportation (Holdings) USA Inc.
CAP	Corrective Action Plan
CAPL	Controlled Assembly Part List
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
Commission	California Public Utilities Commission
CPUC	California Public Utilities Commission
ECN	Engineering Change Notice
FMI	Field Modification Instruction
FTA	Federal Transit Administration
GO	General Order
HSE	Health, Safety, and Environment
ISSA	Internal Safety and Security Audit
LOTO	Lock-Out/Tag-Out

ORS	Operating Radio System
PM	Preventive Maintenance
SCHNM	Safety Concern Hazard Near Miss
SFO	San Francisco International Airport
SFIA	San Francisco International Airport
SIMS	Site Information Management System
SOP	Standard Operating Procedure
SSPP	System Safety Program Plan
Staff	Rail Transit Safety Branch Personnel
TCA	Temporary Change Authorization
UPS	Uninterruptible Power Source

APPENDIX B
2019 AIRTRAIN SAFETY REVIEW CHECKLIST INDEX

Checklist No.	Element / Characteristic	Checklist No.	Element / Characteristic
1	Policy Statement and Authority for System Safety Program Plan (SSPP): AirTrain Management Involvement & Commitment to Safety	13-E	Rules Compliance: Operations Control Center
2	SSPP Goals & Objectives	14-A	Facilities & Equipment Inspections: Non-Revenue Facilities, Maintenance Facilities, & Maintenance Equipment
3	Overview of Management Structure	14-B	Facilities & Equipment Inspections: Stations and Emergency Equipment
4	SSPP Control & Update Procedure	14-C	Facilities & Equipment Inspections: Bridges & Aerial Structures
5	SSPP Implementation Activities & Responsibilities	14-D	Facilities & Equipment Inspections: Measurement & Testing Instrumentation
6	Hazard Management Process	15-A	Maintenance Audits and Inspections: Fixed Guideway Revenue Vehicles
7	System Modification	15-B	Maintenance Audits and Inspections: Signal System, Data Transmission System, Vital Relay Maintenance, & Traction Power System
8	Safety and Security Certification	15-C	Maintenance Audits and Inspections: Fixed Guideway
9	Safety Data Collection & Analysis	16	Training & Certification Programs for Employees and Contractors
10	Event Investigations	17	Configuration Management and Control
11	Emergency Management Program	18	Local, State, & Federal Requirements
12	Internal Safety Audits	19	Hazardous Materials Program
13-A	Rules Compliance: Observation & Enforcement	20	Drug and Alcohol Program
13-B	Rules Compliance: Operations Safety Compliance	21	Procurement Process
13-C	Rules Compliance: Controller, Manual Driver, and Maintenance Personnel Hours of Service	22	General Order 172
13-D	Rules Compliance: Rules, SOPs, & Manuals	23	General Order 175-A

APPENDIX C

2019 AIRTRAIN SAFETY REVIEW CHECKLISTS

CPUC develops a series of checklists prior to each triennial safety review of California Rail Transit Agencies. These checklists are based on the 21 elements required to appear in each agency's SSPP by General Order 164-E and are customized according to the SSPP and the unique features of the agency under review.

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

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

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**1**	**Element**	**Policy Statement and Authority for System Safety Program Plan: AirTrain Administration Involvement and Commitment to Safety**
Date of Audit	June 10, 2019 10:00-10:30 am	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Daren Gilbert Stephen Artus Steve Espinal Mike Borer Jamie Lau	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Jeff Littlefield, Chief Operating Officer (AirTrain) Michelle Washington – HSE Specialist (BTH) Alfredo Hinojosa – Site Director (BTH) Jessica Ibazeta – Operation and Maintenance Manager (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Policy Statement and Authority for SSPP: AirTrain Administration Office (AAO) Involvement and Commitment to Safety -

Interview AirTrain Chief Operating Officer (COO) and Director of Airport Services to determine and discuss:

1. Source, frequency, and depth of safety information provided to the AAO safety is included as a regular topic at AirTrain Action Item Meetings, and whether AirTrain management provides reports at the AirTrain Action Item Meetings.
2. Methods and incentives included in the management performance

system to facilitate a system safety culture within the organization.
3. Types of formal meetings held and attended by AAO to discuss safety performance, such as ongoing evaluation of goals and targets.
4. AirTrain COO and Director of Airport Services' awareness of high priority safety issues related to operations, maintenance, & capital projects for the APM system.
5. AirTrain COO's awareness of the status of corrective actions including those initiated by incidents, hazardous conditions, internal safety & security audits, CPUC triennial reviews, and CPUC inspections.
6. Any safety issues regarding inter-agency coordination among various contractors?
7. Which individuals and departments are involved in making safety decisions and to what degree AAO is involved?
8. Scope of AAO involvement, coordination, and communication in developing SSPP revisions.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Every morning AAO staff meets with Eva Cheong, Airport Director, at 8:45 AM regarding any AirTrain safety issues; Ms. Cheong reports to COO Jeff Littlefield. Every Thursday, AAO meets with other departments of Airport to discuss any AirTrain safety issues and get updates about other safety issues in Airport as well. Jeff Littlefield conveys AirTrain safety issues to Airport Commission.
2. Jeff Littlefield indicated Airport has ten core values, with safety and security as the highest value. Airport staff, including AAO meets on a regular basis to focus on safety and security. On BTH's side, they have monthly meeting to discuss safety topics.
3. AAO attends daily morning meeting with Airport Director, weekly, Thursday with other Airport departments. Also, BTH holds monthly safety meeting.
4. AirTrain COO gets awareness of safety issues from daily morning meeting with AAO. Also, COO gets awareness from local news and social media feeds.
5. AAO copied Airport Director and COO on its monthly corrective action logs to CPUC, so they are aware of any corrective action status.
6. AAO is in communication with AirTrain's contractors BTH and PGH Wong, also other departments such as Fire Department and Airport Facility Maintenance. There have been no issues with safety and security aspect.
7. AAO and Alfredo Hinojosa together make safety decisions.
8. AAO is fully responsible for developing SSPP.

Findings:

None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**2**	**Element**	**SSPP Goals and Objectives**
Date of Audit	June 10, 2019 10:30 am-12:00 pm	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Daren Gilbert Stephen Artus Steve Espinal Mike Borer Jamie Lau	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Alfredo Hinojosa, Site Director (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SSPP Goals and Objectives -

Interview AirTrain Administration Office (AAO) and review appropriate records to:

1. Determine how the SSPP goals and objectives are evaluated, documented and achieved via a reduction in incidents, hazards, rule violations, safety metrics, etc.
2. Determine how safety performance is reported to Chief Operating Officer or AAO.
3. Determine if AAO receives safety information in order to ensure that the AirTrain is meeting its safety goals and objectives. Are rule violations and other key safety metrics being tracked and reported to AAO?
4. Determine whether the stated goals and objectives should be revised.
5. Determine whether management responsibilities are adequately identified for the goals and objectives.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Review SSPP once a year and submit an annual report to CPUC. The report indicates any changes to the SSPP as a result of evaluation.
2. Any incidents within AirTrain system is reported to AAO within 5 minutes by BTH. AAO will shortly notify COO and Airport Director, or the following daily morning meeting with them. BTH prepares a monthly report to AAO that would include safety performance. The safety report does not expressly include reporting on BTH employee rule violations for the reporting period.
3. AAO receives safety information from BTH. BTH prepares a monthly report to AAO.
4. Staff reviewed Section 2.2 and 2.3 of SSPP and is satisfied the goals and objectives are adequate.
5. Staff reviewed Section 3.4.1 to 3.4.4 of SSPP and is satisfied management responsibilities are adequately defined.

Findings:

None.

Comments:

1. Staff found the BTH monthly report to AAO lacks reporting of BTH employee rule violations, which AAO should be aware of as BTH is hired as the AirTrain Operator. Staff suggests the report should include such information.

Recommendations:

None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**3**	**Element**	**Overview of Management Structure**
Date of Audit	June 10, 2019 10:30 am-12:00 pm	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Daren Gilbert Stephen Artus Steve Espinal Mike Borer	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Alfredo Hinojosa, Site Director (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3 and 3.4
3. AirTrain Action Item Meeting Minutes

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Overview of Management Structure -

Interview AirTrain Manager and review appropriate records to:

1. Discuss the process to integrate safety into 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. Identify any specific deficiencies in the safety program due to limitations in personnel or resources. For example, discuss any difficulties in maintaining schedules for SSPP updates, completing Internal Safety and Security Audits, or performing Accident/Incident Investigations, and implementing corrective action plans.
4. Review AirTrain Action Item meeting minutes from the past twelve months in order to verify that the meetings were held according to the requirements in the SSPP.
5. Determine if the AirTrain Administration Office has personnel resources allocated to support interdepartmental coordination on safety issues and concerns?

6. Ensure that the current organization chart accurately depicts both organizations of the AAO and its contractors.

FINDINGS AND RECOMMENDATIONS

Activities:

1. AAO meets with BTH Site Director and O&M Operation Manager every two weeks to go over operation and maintenance activities including safety issues. Staff sampled Action Item Meeting Agendas with attendee sign offs and verified they held such meetings.
2. Staff reviewed a sample of Safety and Security Corrective Action Items log from 2018 Internal Safety and Security Audit and verified they have status update with schedule due dates. Staff also sampled a Health, Safety, and Environmental Dangerous Situation Near Miss Report form showing an incident would follow up by a supervisor to close out.
3. AAO indicates that AirTrain hasn’t experienced any deficiencies in overseeing safety program due to personnel resource limitation.
4. Staff reviewed Action Item Meeting Agendas in 2018 and verified they have an AAO/BTH meeting at least once a month.
5. Michael Robert is allocated to support interdepartmental coordination on safety issues and concerns.
6. AirTrain SSPP 3.4 has an organization chart depicting its and BTH’s structures with names.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**4**	**Element**	**System Safety Program Plan: Control and Update Procedure**
Date of Audit	June 10, 2019 10:30 am-12:00 pm	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Daren Gilbert Stephen Artus Steve Espinal Mike Borer	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Michelle Washington, HSE Specialist (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Annual Review Letter to CPUC

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Control and Update Procedure -
Interview the AirTrain Manager and review appropriate records to:

1. Ensure that the AirTrain Manager understands and is implementing the SSPP procedure requirements.
2. Review past correspondence and records for the last 3 years. Verify that the required annual SSPP review process is being implemented according to the SSPP approved process.
3. Review responsibility for SSPP reviews and comments, verify SSPP reviews and changes progress according to internal timeframes, are comprehensive in scope, and are signed-off by designated staff.

FINDINGS AND RECOMMENDATIONS

Activities:

1. AirTrain Manager indicates he understands and is implementing the SSPP procedure requirements. Staff confirms that AirTrain is largely in compliance with its SSPP.

2. Staff reviewed the past 3 year's records of SSPP review submittals. The last SSPP update was in 2015 and one in 2019. Annual reports were submitted to CPUC.
3. AAO is responsible for SSPP review and comments, verify SSPP reviews and changes progress according to internal timeframes, are comprehensive in scope, and are signed-off by designated staff. Staff sampled a SSPP review report and verified it was signed off properly.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**5**	**Element**	**System Safety Program Plan: Implementation Activities and Responsibilities**
Date of Audit	June 10, 2019 10:30 am-12:00 pm	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Daren Gilbert Stephen Artus Steve Espinal Mike Borer	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Michelle Washington, HSE Specialist (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain Action Item Meeting Minutes

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Implementation Activities and Responsibilities -
Interview AirTrain Manager and review appropriate records to:

1. Verify each manager, department, and contractor is charged with responsibility and accountability for SSPP implementation, enforcement, and effectiveness.
2. Identify any challenges each manager, department, and contractor have in performing SSPP or general safety tasks.
3. Verify Management accountability for the performance of safety-related activities or if serious/potential deficiencies are found.
4. Is the SSPP current? Does the SSPP follow General Order 164-E?

FINDINGS AND RECOMMENDATIONS

Activities:

1. AAO and Site Director are responsible for with responsibility and accountability for SSPP implementation, enforcement, and effectiveness.

2. AAO indicates there is no challenges in performing SSPP or general safety tasks.
3. AAO indicates no serious/potential deficiencies are found. AAO is ultimately accountable for the performance of safety-related activities.
4. SSPP 3.4 is current and updated since March 1, 2019. It was approved by CPUC and follows GO 164-E.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**6**	**Element**	**Hazard Management Process**
Date of Audit	June 10, 2019 1:00-2:30 pm	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Steven Espinal Jamie Lau	**Persons Contacted**	Michael Robert, Assistant Manager (AAO) Michelle Washington, HSE Specialist (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain Accident Investigation Procedure
4. Bombardier Corporate Policy/Local HSE Policy
5. Tool Box meeting
6. Personal Protection Equipment (PPE) Initial Issue
7. Central Control Logs for Occurrences
8. OSHA 300A
9. Past Annual Internal Audits and Triennial Reviews
10. Daily and Monthly facility inspections
11. Rule Book System Operations, SFO Rule Book Version 2015

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazard Management Process

Interview specified representatives and review appropriate records to determine whether:

1. AirTrain 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;
   - AirTrain Contractor’s Central Control logs and maintenance systems;
   - Reports from AirTrain Contractor’s shift pass down;

- Review of AirTrain Contractor’s Central Control logs for unusual occurrences;
- AirTrain Contractor’s OSHA 300A;
- Annual internal audits;
- AirTrain Contractor’s weekly and monthly facility inspections;
- AirTrain Contractor’s Employee Rule book compliance;
- Results from CPUC Triennial Reviews; and
- Results from accident investigations and trend analysis.

2. AirTrain Action Meeting committee and AirTrain Manager maintains a mechanism to capture and track identified hazards through analysis and resolution.
3. AirTrain 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/E) and the AirTrain Manager.
4. Identified hazards are being evaluated according to the established SSPP methods.
5. Corrective Action Plans (CAPs) are developed to address identified hazards and the CAPs, the individual or department responsible for implementation is identified, and a schedule for completion is established.
6. AirTrain Manager follows up on outstanding CAPs developed to mitigate or resolve hazards.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff reviewed samples of Hazard Identification and Risk Assessment Form from Preventive Maintenance in Maintenance Shop (Date 9/21/2018 and 9/21/2018), and Health Safety and Environmental Dangerous Situation/Near Miss Report Form (#31, 32,43, 45 and 48). Staff verified AirTrain is identifying per SSPP. The forms have risk identified.
2. Michelle Washington and Jennifer Quick from BTH both monitor the track the resolution of identified hazards with an Excel sheet. The sheet shows there are currently 5 open items and BTH staff is tracking it to close.
3. AirTrain has defined minimum thresholds for notification and reporting of hazards to CPUC in SSPP revision 3.4.
4. Michelle Washington, Jessica Ibazeta and Eric Riego of BTH take care of the closing of identified hazards.
5. The tracking sheet shows the assigned department to close the hazards, action to resolve the issues. There is no schedule to complete the resolution

of identified hazards, however, there is a column showing how many days the items are open.

6. AirTrain Manager updates CPUC monthly on closing of outstanding CAPs related safety and security internal audits. There hasn't been any CPUC reportable incidents in the past three years, so no CAPs related to incidents.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**7**	**Element**	**System Modification**
Date of Audit	June 14, 2019 8:00–9:00 am	**Department(s)**	Bomdardier Transportation Holdings (BTH)
Auditors/ Inspectors	Ainsley Kung Daniel Kwok	**Persons Contacted**	Eric Riego, FSE Supervisor (BTH) Justin Charshaf, Vehicle Engineer (Bombardier) Eric Leveque, Field Service Specialist, (Bombardier)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. SFO APM Modification / Change Request Form
4. Procedure: Field Modifications

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Modification -

Interview specified representatives and review appropriate records to determine whether:

1. SSPP and referenced or supporting procedures ensure a process exists for addressing safety issues and concerns in system modifications.
2. System modification projects addressed safety issues and concerns during all phases of the project with the involvement of other required departments through monthly/routine action item meetings.
3. The BTH is involved in assessing/ensuring safety concerns are addressed in system modifications by identifying their specific activities in the process such as documentation, participation in testing and inspections and observations performed at work sites.
4. Review three recent system modification projects implemented and:
    a. Verify that this process was consistent with the SSPP and reference document requirements and included an evaluation of potential hazards the modification could pose to the system.

b. Verify that these were addressed and included an evaluation of potential hazards arising from the proposed modification. (i.e., emails, meeting minutes, sign-offs, inspection checklists, etc.).
c. Verify that any changes made as a result of a system modification are now reflected in final as-built drawings for the facility and/or specifications for the vehicle and/or equipment.
d. Verify that the configuration management process has been followed to address system modifications, and no unauthorized modifications were implemented.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Bombardier staff explained there have been no modifications performed within the past 3 years on the AirTrain system which is not covered by the AirTrain Extension Project. The system modifications done under the Airtrain Extension Project is cover by the Safety Certification Program.

   Bombardier elaborated they perform regression testing if a modification is made, an example they provided was modification of train control software. Before modification is installed, AirTrain (Bombardier) will go through Temporary Change Authorization (TCA). AirTrain (Bombardier) will get form approved by Bombardier Engineering (HQ) then appropriate software/update is given to AirTrain. Within the TCA, there are regression testing procedures and AirTrain (Bombardier) will perform the test per the approved test procedures.

   Additionally, AirTrain (Bombardier) stated Bombardier Engineering (HQ) will dictate if regression testing is needed; examples being ATP (Automatic Train Protection) modifications, ATO (Automatic Train Operation) modifications, and FRs (Field Request). If there are issues within the APM systems, then the problems occurring are relayed to Bombardier Engineering (HQ). Bombardier Engineering (HQ) will find a solution, and the follow the TCA procedures, and if necessary, regression testing.

   Staff reviewed the Line-of-Sight train to wayside signaling and communications upgrade regression testing packet, which is part of the AirTrain Extension Project, as an example.

2. AirTrain (Bombardier) states they hold an All-Employee Meeting monthly. AirTrain (Bombardier) showed to staff all hands meeting agenda/discussion

topic PowerPoint slide for the All-Employee Meeting. Although AirTrain (Bombardier) do not keep meeting minutes for each meeting, they showed to staff the All-Employee Meeting Sign-in Sheet as evidence meetings were held. AirTrain (Bombardier) states that if there are any modifications done on the system, then technicians directly involved with the system are made aware through training. Other departments are made aware through the All-Employee Meetings.

AirTrain (Bombardier) showed SCHNM (Safety Concerns Hazards & Near Misses) binder, which contained bulletins that all employees need to sign and acknowledge receipt.

3. Airtrain (Bombardier) showed an example, from the AirTrain Extension Project covered by the Safety Certification Plan but not a modification, the Vehicle Dynamic Operation Field Test Procedures which requires testing and inspection documentation.

4. Bombardier staff explained there have been no modifications performed within the past 3 years on the AirTrain system which is not covered by the AirTrain extension Safety Certification Plan.

<u>Findings:</u>
None.

<u>Comments:</u>
None.

<u>Recommendations:</u>
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**8**	**Element**	**Safety and Security Certification**
Date of Audit	June 14, 2019 9:00–10:00 am	**Department(s)**	AirTrain Administration Office (AAO) AirTrain Extension Project Management Support Services (PMSS) – contractor
Auditors/ Inspectors	Ainsley Kung Daniel Kwok	**Persons Contacted**	Peter Chu, Deputy Resident Engineer (Project Management Support Services) Michael Robert, AirTrain Assistant Manager Alfredo Hinojosa, SDC Director, Bombardier

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain Safety & Security Certification Plan for AirTrain Extension Project

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety and Security Certification -
Interview the specified representatives involved in the Safety Certification Program (SCP) and review the records for all minor/major projects to determine whether:

1. A formal SCP has been submitted and approved by the Commission.
2. Each submitted SCP was consistent with General Order 164-D/E, the SSPP, and applicable reference documents requirements.
3. CPUC has participated in the Preliminary Design Phase and other phases.
4. All design and construction changes were properly documented and addressed in the Safety Certification process.

5. All identified hazards have been eliminated or controlled as required under the SCP.
6. All certifiable elements for Safety Certified projects during the past three years were identified for the Safety Certification Verification Report and submitted to CPUC in a timely manner, according to the requirements of General Order 164-D/E.

FINDINGS AND RECOMMENDATIONS

Activities:

1. A formal SSCP (Safety and Security Certification Plan) has been submitted to the CPUC for the SFO AirTrain Extension and Improvements Program project; and has been approved by the CPUC per RTSB Program Standard Checklist in accordance with GO 164-D criteria.

   SKANSKA-WSP (contractors) is working on AirTrain Extension project. This is a separate team from AirTrain Operations and Maintenance

   AirTrain Extension project will be done in three phases:

- Phase I: Upgrading from Radiax system to LOS (Line-of-Sight) system. Currently being done and testing being done at night. SCVR to be submitted end of June 2019.
- Phase II: Construction of Hotel Station. Upgrade system with separate software map with hotel station. The Software Map is delayed and will not be submitted with the Phase II SCVR. Currently Airtrain plans to submit the Software map portion of the Phase II SCVR in Fall 2019.
- Phase III: Guideway extension from rental car station to SFO Lot DD. Estimated to be completed in 2021.

   PMSS (Project Management Support Services) meeting minutes sent to CPUC Staff every week for - Bombardier weekly progress meeting. Project is almost ready to submit Phase I for revenue service. PMSS Engineer described the project progress as the following:

- 3 Vehicles on site need additional retrofits to integrate the new system and have not yet been certified.
- Internal certification for 3 vehicles for LOS. 38 vehicles and 1 maintenance, on existing system, plus 3 vehicles which are new.
- 904 test (departure test) and radio frequency test.

Facilities side of project holds FLSSC (Fire/Life Safety and Security)-like meeting, called Partnering Meetings. Partnering meetings, which are held on a monthly basis, are an open forum format meeting where AHJs (Fire Departments, BICE (Building Inspection & Code Enforcement), Aviation Security, etc.) are involved/participants in.

PMSS Engineer states the CPUC is invited to attended and are on their distribution list. All Partnering Meeting minutes and Progress Meeting minutes are also sent to the CPUC.

Staff reviewed the following documents:

- Partnering Meeting Minutes: June 7th, 2019
- Progress Meeting: Sept. 14, 2017, July 12, 2018, June 6, 2019

Staff inquired regarding language in SSPP Section 5.2: Safety Certification Status Reports. AirTrain Assistant Manager clarified that they hold status update meetings. Staff notes that the language should be changed to better reflect the nature of the meeting and is not actually a report.

Staff noted dates in SSCP does not reflect current timeline. AirTrain is in progress of updating SSCP with new dates. (Since the date of the review, revisions have been discussed with CPUC and this has been addressed by AirTrain. AirTrain has submitted an updated SSCP, which Staff reviewed and approved.

2. See #1

3. See #1

4. PMSS Engineer states SKANSKA-WSP populates the Design Conformance checklist and is signed off for verification by party qualified. Design document goes through a review process which includes airport stakeholders, PMSS, and BICE. This review is typically done through Bluebeam sessions. Once BICE stamps the document, it is considered approved internally by SFO Airport.

   Staff reviewed Certificate of Conformance checklist dated May 2019.

   Staff notes AirTrain should add in Partnering Meetings to SSCP to reflect current practices.

5. PMSS Engineer states Hazards are identified in an Excel document, a tab for DB Conformance Checklist. Staff reviewed the Conformance Checklist.

   Staff notes AirTrain should add in subsection in to include approval process and who verifies Design Conformance.

6. AirTrain has not yet submitted the SCVR for the AirTrain Extension Project, and there have not been any additional projects needing a SCVR submittal in the past 3 years.

Findings:
None.

Comments:
1. Staff noted dates in SSCP does not reflect current project timeline. AirTrain is in progress of updating SSCP with updated dates for the phases. PMSS Engineer states that it has been discussed with CPUC and will be addressed with the upcoming SSCP revision.
2. Staff notes that the language in SSPP Section 5.2 should be changed to better reflect the nature of the meeting and is not actually a report.
3. Staff notes AirTrain should add in Partnering Meetings to SSCP to reflect current project practices.
4. Staff notes AirTrain should add in subsection in Excel document to include approval process and who verifies Design Conformance.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**9**	**Element**	**Safety Data Collection and Analysis**
Date of Audit	June 11, 2019 10:00–11:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Claudia Lam Patrick Donnelly	**Persons Contacted**	Michelle Washington, HSE Specialist (BTH) Jessica Ibezeta, O&M Manager (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Accident/Incident Investigation Procedures (AIIP)
4. Site Computer–Management System to collect and track Preventive Maintenance
5. Accident Injury Management and Reporting Policy and Procedure
6. Incident Management and Reporting Policy & Procedure (Near Miss)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety Data Collection and Analysis -
Interview the specified representatives responsible for safety data collection and analysis, and review the safety data collection and analysis program requirements to determine whether:

1. The data collected includes, at minimum: information concerning events, employee performance failures, equipment failures, procedural deficiencies, and rules violations.
2. The safety data is supplied by, and collected from, all departments, including Operations, Risk Management, and Maintenance, as appropriate.
3. The safety data collected is analyzed and incorporated into the Hazard Management Process as necessary.
4. The safety data and analyses are made available to all departments for use in planning their safety-related activities and implemented according to the SSPP.

5. Periodic reporting regarding the results of the safety data analysis is provided to Management as appropriate.
6. Verify that the safety data sources identified in the SSPP are being used and data analysis and distribution are implemented.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the AirTrain representatives responsible for Safety Data Collection and Analysis. Staff found:

1. Gracis is the new database that Airtrain used to track the safely data mainly used for accidents, near misses. SYS HSC (System, Health, Safety and Environmental). MAXIMO is also a new database started in early 2015 used to track all maintenance data like equipment failure and procedural deficiencies.

2. Safety committee meeting and employee meeting are hosted monthly to discuss the safety data. Also, Share Point is the database website every department can access and share the information.

3. Staff reviewed the documents and they showed that Safety Data collected was analyzed using Hazard Identification and Resolution Process. Staff requested the training material from Safety committee meeting. It showed that Risk assessment training was provided for all staff to understand what's Risk assessment.

4. Share point is the database website every department can access and share the information. Also, safety alerts are sent through BTH to all the APMs; also, bulletins are another way to share safety data with all departments in planning their safety-related activities.

5. Gracis generates reports and provide to the Executive Management for periodic review. The report contains data related to Operations, Maintenance, Health, Safety and Environmental. Staff reviewed a few examples of Monthly Summary Reports.

6. Staff reviewed a few reports and they showed that AirTrain is utilizing its safety data sources for analysis and incorporated into the Hazard Identification and Resolution Process.

Findings:

None.

Comments:

None.

Recommendations:

None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**10**	**Element**	**Event Investigations**
Date of Audit	June 11, 2019 9:00–10:00 am	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Patrick Donnelly Steven Espinal	**Persons Contacted**	Michael Robert, Assistant Manager (AAO) Alfredo Hinojosa, SDC Director (BTH) Michelle Washington, HSE Specialist (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain Accident Investigation Procedures
4. Accident Reports
5. Corrective Action Plans
6. Guidelines for Product Related Incident / Accident / Near Miss Investigations

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident/Incident Investigations -

Interview the specified representatives responsible, and randomly select any CPUC-reportable accidents and/or incidents involving an injury or fatality to determine whether:

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

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

FINDINGS AND RECOMMENDATIONS

Activities:
CPUC staff interviewed AirTrain staff concerning Event investigations. AirTrain has not experienced a reportable incident in its history of revenue service. Compliant Event reporting standards and incident procedures are detailed in the SSPP.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**11**	**Element**	**Emergency Management Program**
Date of Audit	June 11, 2019 1:00–3:00 pm	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Rupa Shitole Madeline Ocampo	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Michelle Washington, HSE Specialist (BTH) Jessica Ibazeta, O&M Manager (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain System Security Plan (SSP)
4. SFO and AirTrain Joint Exercise
5. Rule Book Systems Operations, SFO Rulebook version 2015

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Emergency Management Program

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

1. Solicit an overview of the process for the 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 emergency planning.

3. Determine when was the last drill/exercise performed and if a post-drill action report was developed? Was the post-drill action report used to revise AirTrain's Emergency Plan and/or procedures? If so, have these corrective actions been implemented with AirTrain staff and emergency responders?
4. Determine if AirTrain conducts periodic meetings with sheriff, FBI, TSA and fire departments in AirTrain jurisdictions, emergency response agency familiarization activities have occurred as scheduled and corrective actions have been implemented.
5. Check to see if the station facility monitoring system, fire protection (fire extinguishers, fire alarms, and fire suppression) security systems, emergency phones, closed circuit television system, and standards telephone systems are working properly.
6. Emergency response training:
    a. Review training programs to verify they contain training curriculums for emergency response procedures and activities appropriate for each job classification.
    b. Review training programs to verify frequency of employee emergency response training.
    c. Randomly select five (5) employees from safety sensitive job classifications and review their emergency response training records to verify who has been trained and that training has been properly documented.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed AirTrain and BTH representatives related to Emergency Management Program and determined the following:

1. Once a year exercises are conducted by AirTrain as required by General Order 164 D/E. Staff reviewed documentation pertaining to exercises in 2016, 2017, 2018, and the planned exercise for 2019. Earthquake, Security and Air crash exercises are conducted by the airport annually and AirTrain is a participant in these exercises. The Transportation Security Administration (TSA) also conduct exercises as needed and contact AirTrain if they want AirTrain to participate. The Operation Gold Rush exercise will be conducted in August 2019. Last year, AirTrain could not conduct their exercise as required due to the construction and other activities. Instead, AirTrain emailed the CPUC designated representative to consider the airport exercise as the GO 164 fulfillment. Staff

reviewed the email exchange between CPUC and AirTrain dated June 13, 2018, in which CPUC Staff approved the substitution. The following exercises were reviewed by CPUC Staff:

- In 2016, AirTrain conducted an exercise on July 22, 2016 modeled after an incident on March 19, 2016 at Denver International Airport in which the automated people mover accidentally speed through a switch, resulting in several injuries to onboard passengers. Participants were SFFD, San Francisco Police Department (SFPD), Bombardier, Airport Communications, Airport Duty Manager, Emergency Planning, AirTrain Administration, and Bombardier Transportation. There were 3 action items for AirTrain to follow up. CAPs have been created, tracked, and closed in October 2017 and June 2018.
- AirTrain Emergency Exercise dated July 13, 2017 - Three technicians were walking on the emergency guideway and one of the technicians lost his footing and fell onto the running surface striking the power rail resulting in an electrocution. Participants were AirTrain Administration, Bombardier, San Francisco Fire Department (SFFD), Airport Communications, Airport Duty Manager, and the CPUC. There was no follow-up action plan for AirTrain. There were general comments such as Control Center and Fire Department (FD) lacking communication, Lock Out Tag Out (LOTO) taking 25 minutes before the exercise could start, and FD not being able to access location due to construction.
- In 2017, AirTrain also participated in a TSA-led exercise in which the bomb squad responded to 4 different scenarios, one of which was at an AirTrain station and involved an AirTrain car. In that exercise, AirTrain provided the car and was an observer. Staff reviewed an email printout dated June 2017 containing "SFO Bomb Squad Response to Transportation Systems Exercise After Action Review" and none of the recommendations pertained to AirTrain.
- Water Crash Exercise dated September 19, 2018 (SFO Emergency Exercise - AirTrain were observers in this exercise)
- Safety Committee Meeting Minutes dated February 26, 2019 (This was an emergency fire drill by SFFD involved and the exercise resulted in an immediate evacuation. The AirTrain had to update their Fire Drill procedure to immediately evacuate the building.)

2. A drill/exercise schedule is created on an as needed basis. These are discussed at monthly meetings. Refer to bullet #1 above for more details on exercises and drills conducted for the last 3 years. Based on Staff's documentation reviews and discussions, AirTrain conducts annual emergency exercises, gets involved in

the exercises of the airport and TSA, and invites SFFD and SFPD to participate in AirTrain familiarization exercises.

3. The last exercise was Water Crash conducted by the Airport in CY 2018. The AirTrain were just observers and so had no action items to follow. The after-action report was not printed out by AirTrain since the report did not have any Corrective Action Plan (CAP) to follow. Therefore, the emergency plan or procedures did not need any update.
4. AirTrain and other external agencies attend the weekly Security Operations Group (SOG) meeting (Chair is Director of Safety and Security of the Airport.) Participants include TSA, Aviation Security, SFFD, SFPD, FBI, Hotel Security, Sheriff, etc. AirTrain invites SFPD and SFFD for familiarization training, and SFFD tends to come in unannounced for informal observations of the AirTrain system. Staff reviewed random SOG agendas from meetings dated as follows:
   - CY 2016 -January 14th, January 21st, February 18th, July 28th, August 4th, November 10th.
   - CY 2017 – January 26th, April 6th, and July 3rd.
   - CY 2018 - January 4th, March 8th, May 3rd, May 31st, August 2nd, December 13th, December 27th.
5. Central Control Operator (CCO) Checklist dated May 10, 2019 was reviewed. AirTrain use the CCO checklist every shift and verify if all the CCTVs are working properly. Staff inspected fire extinguishers and service and emergency phones in the 679 building. Staff checked the tags on fire extinguishers in rooms 679-2-018, 679-2-001, 679-2-009, and 679-1-020. Staff also checked the tags on fire extinguishers in an open hall by 2nd floor cubicles, PDS on the first floor, and in a hallway by PDS. At PDS, Staff observed AirTrain personal use the service and emergency phone. Of the fire extinguishers checked, all were inspected in May 2019, except the one in 679-2-018, which was last inspected May 2018. On June 12, 2019, AirTrain personal sent an email with a photo to CPUC Staff that correction was made to that one fire extinguisher.
6. Reviewed following supporting documents:
   a) Staff reviewed the Health and Safety Management System (Emergency Action and Fire Prevention Plan) dated June 1, 2019, which contained instruction on how to recognize and safely handle several types of emergency situations. Rule book Section 4 is the emergency procedures and the employees and contractors are trained on this initially. Any changes to the procedure are updated and distributed to all technicians and training is provided accordingly.
   b) New employees when hired get the initial training and if a refresher is needed, they request one. A toolbox meeting related to Rulebook and

Safety Topic is conducted as refreshers on a monthly basis. The employees continually participate in monthly toolbox talks, which cycles through the same topics every 2 years.

c) All AirTrain operators and technicians are safety-sensitive positions. Staff reviewed training certificates of five random safety-sensitive employees as follows: ID 318787, 114828, 143456, 202289, 149381 were reviewed.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**12**	**Element**	**Internal Safety Audits**
Date of Audit	June 14, 2019 10:00–11:00 am	**Department(s)**	AirTrain Administration Office (AAO)
Auditors/ Inspectors	Daniel Kwok, Utilities Engineer Ainsley Kung, Utilities Engineer	**Persons Contacted**	Michael Robert, Assistant Manager (AAO)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain Audit Schedule 2016 - 2018
4. AirTrain Internal Audit Team files
5. AirTrain's APM System Contractors Monthly / Weekly Facility Inspections

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Internal Safety Audits (ISA)

Interview the specific representatives involved in ISAs, and review appropriate records to:

1. Determine if a three-year internal audit schedule was developed and submitted to CPUC.
2. Verify that all elements were evaluated within a three-year period.
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 AirTrain has a process in place for addressing and overcoming non-responsiveness of other department's non-implementation of audit recommendations.

5. Verify CPUC was notified 30 days in advance of the scheduled audit via a letter and/or an email and checklist(s) were provided prior to the audit.
6. Verify each audit identifies the appropriate departments, personnel, the safety-related activities addressed, and the reference criteria.
7. Verify audits have been properly documented, included references for documents, activities reviewed, criteria for evaluation, and notes to support findings and recommendations.
8. Verify Annual Reports for 2016-2018 are accompanied by a formal letter of certification signed by the Accountable Executive indicating the compliance status with its SSPP, and if not in compliance, identifies the activities conducted to achieve compliance.
9. Verify Corrective Actions from the internal safety audit process were scheduled, tracked, and implemented.

FINDINGS AND RECOMMENDATIONS

<u>Activities:</u>

CPUC interviewed SFO AirTrain representatives and reviewed the following ISA Documents:

- 2016, 2017 and 2018 AirTrain Internal Safety Audit Schedule
- Safety and Security Corrective Action Items List
- Email exchanges between AAO Assistant Manager and CPUC Rep to AirTrain regarding 30-day notice to CPUC requirement.

1. Staff verified the 3-year ISA schedule was developed; the three-year schedule is submitted with every ISSA submittal forecasting upcoming Elements to be reviewed. SFO AirTrain works with CPUC staff to schedule the ISA to include CPUC observers.

2. Staff verified all 22 elements were evaluated within 3-year period. SFO AirTrain is currently modifying the ISA schedule format to include a 4th column to include items reviewed for current year, and the 3 future years, to show overlap of common elements.

3. SFO AirTrain states field inspections are also performed as part of the ISA. ISA reports only indicate recorded CAPL tag number, as part of the administrative audit. Staff was unable to determine from audit documentation if any field activities were performed. SFO AirTrain should be more specific in documenting field activities performed as part of the audit process.

4. SFO AirTrain states they are currently in process renewing their contract with their current operations and maintenance contractor, Bombardier. SFO AirTrain indicates they are adding more items to the Contract's Performance Specifications. SFO AirTrain states there have been no issues in the past regarding interagency/interdepartmental communication, Bombardier is responsive to AirTrain's requests and they meet every 2 weeks. In a hypothetical scenario, if issues arise and unresolved, they will get escalated to their respective executive managements for resolution.

5. SFO AirTrain states CPUC Rep is notified by email for upcoming audits. AFO AirTrain Assistant Manager provided an email to show that CPUC Rep required SFO AirTrain to provide CPUC at least a 30-day notice prior to an ISA.

6. Staff verified 2016, 2017, and 2018 ISA Report have been documented, references for documents and activities reviewed, criteria for evaluation, and notes to support findings and recommendations.

   2016 – Two of the Persons Contact field (Checklist 8 and 9) is blank.
   2017 – No issues.
   2018 – No issues.

   A discrepancy was noted in the 2016 report; however, this was not indicative of a systematic issue, as it did not reoccur in the more recent reports

   General comments for all three ISA Reports:
   i) The items listed in the "Characteristics and Method of Verification" section of the checklists should be addressed in the "Activities" section of the checklists.
   ii) Persons contacted should include their positions titles.

7. See CPUC AirTrain Triennial CL 12, #6

8. Staff verified Formal Letter of Certification was signed by SFO AirTrain Manager, Assistant Manager, and Bombardier SDC Director. Letter of certification is sign by the accountable executive, SFO Chief Operations Officer (COO). SFO AirTrain Manager and Assistant Manager attend Morning Briefings with the COO, to provide him with information and updates regarding the Airtrain system.

9. Staff reviewed CAPs tracking matrix: "Safety and Security Corrective Action Items List" and verified 2018 items were closed in 2019, all meeting Target Dates. Prior Audit CAPs have also been completed and closed by SFO AirTrain.

<u>Findings:</u>

2. CPUC auditors were unable to determine if field activities were performed by SFO AirTrain in ISA reports. Activities performed were not fully documented in response to ISA checklist Method of Verification.

Comments:

1. A discrepancy was noted in the 2016 report regarding “Person’s Contacted” field being blank; however, this was not indicative of a systematic issue, as it did not reoccur in the more recent reports
2. AirTrain ISA report “Persons Contacted” field should include respective positions titles for persons involved
3. SFO AirTrain ISA report activities should better align with criteria in “Characteristics and Method of Verification”.
4. The following discrepancies were noted regarding SSPP Section 7 – ISA Process:
   - “AirTrain Operator’s Internal Safety Audit Procedures” does not exist, as verified by AAO Assistant Manager. AAO Assistant Manager states reference will be deleted in next revision of SSPP
   - “Airtrain Operator’s Safety Coordinator” position does not exist, as verified by AAO Assistant Manager. AAO Assistant Manager states position will be deleted in next revision of SSPP
   - Section 7.3 states: “twenty-four” elements to be checked in the ISA process, AAO Assist manager verified this was a typo and will be corrected in next revision of SSPP.

Recommendations:

1. SFO AirTrain should document AAO field inspections performed during the ISSA process in the ISSA report.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**13-A**	**Element**	**Rules Compliance: Observation and Enforcement**
Date of Audit	June 12, 2019 8:00–9:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Richard Fernandez Michael Rose	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Michelle Washington, HSE Specialist (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Operations Rule Book
4. AirTrain's APM System Contractors Personal Electronic Device Usage Restrictions Policy
5. General Order 172

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Observation and Enforcement

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

1. Verify AirTrain's Contractor performs formal observations of controllers as specified in the SSPP.
2. Verify AirTrain 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. Determine how AirTrain's Contractor performs efficiency tests of operating and maintenance personnel and verify corrective actions for rule violations.
6. Verify if AirTrain Manager receives reports from AirTrain's 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 AirTrain Manager, managed through the hazard management process.
7. 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 AirTrain's rules.

FINDINGS AND RECOMMENDATIONS

Activities:

1. - 3. CPUC Staff reviewed Bombardier's Primary Inspection Form and their System Inspection/Audit Form to which, each Supervisor and Field Service Specialist are required to fill out 1 per week. Bombardier utilizes these documents to conduct inspections and formal observations on their employees and facilities. CPUC Staff found documentation not completed in its entirety on both forms.

4. There have been no reportable accidents since AirTrain began service. Bombardier has zero injuries in over 3 years.

5. Bombardier utilizes a monthly All-Employees Meeting to review rules and address safety concerns. CPUC Staff inspected October 2018 All-Employees Meeting where, if any rule infractions occurred, the corrective action plan would be discussed and implemented to all Bombardier Employees.

6. The AirTrain Manager does receive copies of All-Employee Meeting and are easily accessible for all employees on SharePoint.

7. Staff conducted the random sampling indicated and noted no exceptions.

Findings:

1. The Primary Inspection Form has missing PED Pass/Fail observations, and missing Employee Radio Number. The System Inspection/Audit Forms reviewed are missing Signatures and Times. October 2018 All Employees Meeting missing required employee signatures. 2019 All-Employees Meeting Folder is labeled 2017 and is unorganized.

Comments:
None.

Recommendations:
1. Bombardier should ensure all documentation is filled out completely and properly and that the files are organized.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**13-B**	**Element**	**Rules Compliance: Operations Safety Compliance**
Date of Audit	June 12, 2019 9:00–10:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Richard Fernandez Michael Rose	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Michelle Washington, HSE Specialist (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Operations Rule Book, version 2015
4. AirTrain's APM System Contractors Access Control Plan
5. AirTrain's APM System Contractors Personal Electronic Device Usage Restrictions Policy

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Safety Compliance

Interview AirTrain's Contractor personnel responsible for Operations Safety, observe/inspect operations, and review documentation as necessary to determine whether:

1. Maintenance Workers -
   a. Observe worker access authority provisions and procedures for workers to verify compliance with the Rule Book.
   b. Interview at least two workers to evaluate their knowledge and understanding of the AirTrain's Contractor Rules and Procedures for mainline operations.
2. Controllers -

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, AirTrain's Contractor Rule Book and Bulletins.
c. AirTrain's Contractor controllers are knowledgeable in dealing and coordinating with others during incidents, accidents, and emergency response situations.

FINDINGS AND RECOMMENDATIONS

Activities:

1. CPUC Staff was given a tour of the AirTrain Maintenance Shop on the third floor where the APM-100 Vehicles are maintained, repaired and cleaned. CPUC Staff interviewed one Lead Technician and two Technician's working on the shop floor. All were knowledgeable of Bombardier's rules and policies concerning safe shop practices and the movement of vehicles.

2. CPUC Staff Interviewed two Controllers (referred to as Operators by AirTrain), CPUC Staff observed their normal working routine within the Control Center. The Operators were very knowledgeable of the procedures and rules of the system and had all reference material pertaining to their duties accessible for review.

Findings:
None.

Comments:
The Maintenance Shop was very clean and orderly. Employees feel empowered and told CPUC Staff, the AirTrain Maintenance Shop is the safest environment they have worked in.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**13-C**	**Element**	**Rules Compliance: Controller, Manual Driver, and Maintenance Personnel Hours of Service**
Date of Audit	June 12, 2019 9:30-10:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Richard Fernandez Michael Rose	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Justin Charshaf, FSE Supervisor (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM Time-Cards
4. AirTrain's APM System Contractors Operations Rule Book, Revision 5, January 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Controller, Manual Driver, and Maintenance Personnel Hours of Service

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

- Controller
- Manual Driver
- Fixed Guideway and Signal Maintenance
- APM Vehicle Maintenance

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

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

FINDINGS AND RECOMMENDATIONS

Activities:

1.-2. CPUC Staff selected at random 7 employees, 2 Controllers and 5 Technicians. All employees reviewed had adequate time in between shifts as mandated and only one discrepancy in hours of service. CPUC Staff found Employee 10203525 worked 12.2 hours on May 24, 2018 and was subsequently paid for clocking in early. Bombardier does have a rule in place and a notice at the time clock for all employees to follow the ten-minute clock in rule. All other records reviewed were in compliance of Hours of Service.

Findings:

None.

Comments:

Ensure all employees understand and follow the ten-minute clock in rule and Human Resources and Management reviews any 12-hour discrepancy before employee is paid for work performed.

Recommendations:

None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**13-D**	**Element**	**Rules Compliance:** **Rules, SOPs, & Manuals**
Date of Audit	June 12, 2019 10:00 am-11:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Richard Fernandez Michael Rose	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Justin Charshaf, FSE Supervisor (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Procedure Control of Contractors
4. Contractors Maintenance Manual, Operations Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Rules, SOPs, & Manuals
Interview representatives responsible for operations rules and procedures, maintenance procedures, and review necessary documentation to determine whether:

1. All contractor rule books, maintenance procedures and all active Operating Bulletins are reviewed, revised systematically and distributed to the relevant personnel.
2. All Operating Bulletins were approved by the Operations Superintendent with concurrence of affected departments if applicable and issued in a timely manner.
3. An employee record of all Operating Bulletins issued, and received
4. Active Operating Bulletins are posted in specified locations, and inactive bulletins are removed in a timely manner.

5. CPUC Staff received all new operating rules and bulletins during the past 36 months, and issuance was tracked.
6. Conduct interviews with AirTrain representatives to discuss their role in ensuring that safety concerns are addressed a rule book rules compliance program.
7. The AirTrain representatives receive reports from the APM Contractor operations and maintenance departments regarding the performance of rules checks, assessments, and testing
8. Hazards identified from the rules compliance process and reported to AirTrain representatives and managed through the hazard management process.

FINDINGS AND RECOMMENDATIONS

Activities:

1.-2. CPUC Staff found Bombardier Management reviews Operating and Maintenance procedures and bulletins annually or as needed. The Bombardier Rule Book is systematically reviewed every year and if there are any changes to rules, a new Rule Book is issued.

3. All employees are required to sign the sign-off sheet when a change is made and reviewed. All sign off sheets for the PED Manual were reviewed by CPUC Staff to verify documents were correct and each employee was made aware of the changes to the document.

4.-6. CPUC Staff reviewed AirTrain Operating Procedures Manual Use of Cellular Telephones and Other Personal Electronic Devices (PED Manual) which shows, who prepared, verified, approved and released the document step by step including approval by appropriate management and director.

7. See Checklist #2. BTH does supply information to AirTrain on rules compliance.
8. AirTrain uses the Hazard Management Process to gauge and fulfill each safety related concern on the SCHNM Form starting from the original write up to the completion and mitigation.

Findings:

None.

Comments:

None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**13-E**	**Element**	**Rules Compliance: Operations Control Center**
Date of Audit	June 12, 2019 12:00-1:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Richard Fernandez Michael Rose	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Justin Charshaf, FSE Supervisor (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Procedure Control of Contractors
4. Contractors Maintenance Manual, Operations Manual and SOPs

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Central Control
Interview AirTrain Contractor representatives responsible for operations rules and procedures and review necessary documentation to determine whether:

1. Control Center records have been maintained as required.
2. Control Center reports/logs related to intrusion alarms, false presence, and others associated with system monitoring are documented.

FINDINGS AND RECOMMENDATIONS

Activities:
CPUC Staff reviewed Guideway Access Log for October 2018. The Guideway Access Log is a detailed authorization of who enters and exits the guideway kept in a hand-written book by the Operators.

Bombardier Personnel showed CPUC Staff random Delay Reports stored on SharePoint for 3 separate incidents:

- 1/06/18 an open door on a APM-100;
- 2/09/18 GAR close lock failure;
- 3/21/18 Loss of track power.

Each Delay Report shows a timestamp, systematic account of each incident from initial report to completion.

Findings:
1. CPUC Staff found missing Time In and Time Out entries for the Guideway Access Log on multiple days throughout October 2018.

Comments:
None.

Recommendations:
1. Bombardier Operators should accurately fill out the Guideway Access Form. Management should ensure Operators documentation is correct and employees are safely accounted for before restoring guideway power.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**14-A**	**Element**	**Facilities & Equipment Inspections: Non-Revenue Facilities, Maintenance Facilities, & Maintenance Equipment**
Date of Audit	June 12, 2019 1:00-4:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Sal Herrera Shane Robertson	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Michelle Washington, HSE Specialist (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Procedure Control of Contractors
4. Contractors Maintenance Manual, Operations Manual and SOPs
5. APM System Contractors Monthly / Weekly Facility Inspections
6. APM System Contractors Site Safety Walk Inspection records
7. Safety and Security Committee Tracker

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities & Equipment Inspections: Non-Revenue Facilities, Maintenance Facilities, & Maintenance Equipment

Interview the appropriate representatives, perform field observations of AirTrain Contractor personnel inspecting facilities and equipment, and review appropriate records for past 3 years to determine whether:

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

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

FINDINGS AND RECOMMENDATIONS

Activities:

1.-3. CPUC reviewed inspection records for: Non-Revenue Facilities, Maintenance Facilities, & Maintenance Equipment for the past 3 years.

Findings:

1. Incomplete Weekly inspection forms. BTH Staff are not completely filling out forms, such as the "inspected by" is missing initials, some "Ok /not Ok" box are not checked off, the "completed description box" and "Date" of completion not filled out, unless the issue was fixed during the inspection.

   An identified hazard was not tracked or placed in the Maximo tracking system. There are no records to show if the hazard is still present or if it has been fixed. Inspection form 04/10/2019 by D. Helms "exposed electrical wires" 1st floor adjacent to 120 POS.

   Potential hazards or defects are not being tracked on inspection forms. Section is left blank. However, they are tracking directly into the Maximo system.

2. The Maintenance Recovery Vehicle (**MRV**) MRV200=90-day or the MRV 500=annual inspections are not being performed per required intervals for the past three years.
   2017=2 inspections
   2018= 1 inspection
   2019= 2 (on schedule) 01/05/19 & 03/08/19

Comments:

1. Airtrain personnel should revise forms to indicate that hazards and corrections are being tracked through Maximo and remove all unused columns on the form.

2. Airtrain personnel should assign someone to review forms weekly or monthly making sure that all the correct data is being tracked and no important information is being missed and to ensure that paperwork has no errors.

Recommendations:

1. Airtrain personnel should fill out all forms completely and sign in appropriate boxes on forms.

2. Airtrain personnel should ensure that all Maintenance equipment is being inspected as per scheduled required intervals.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**14-B**	**Element**	**Facilities and Equipment Inspections: Stations and Emergency Equipment**
Date of Audit	June 12, 2019 1:00-4:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	James Matus	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Procedure Control of Contractors
4. Contractors Maintenance Manual, Operations Manual and SOPs
5. APM System Contractors Monthly / Weekly Facility Inspections
6. APM System Contractors Site Safety Walk Inspection records
7. Safety and Security Committee Tracker

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Stations and Emergency Equipment
Interview the appropriate representatives, perform field observations of AirTrain Contractor personnel inspecting facilities and equipment, and review appropriate records for past 3 years to determine whether:

1. Required inspections were performed per supporting references.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans developed, and implemented in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:

1. CPUC Staff reviewed documentation for the past three years related to the required inspections for the facilities and safety equipment. CPUC Staff performed walk-through visual inspections of shops, stations and maintenance areas to see if equipment was being properly maintained.

2. CPUC Staff verified all eyewash stations, AED's, fire extinguishers, portable jacks, and housekeeping cleanliness are being monitored.

3. All items inspected need to be tracked and monitored by Maximo systems. All stations, fire extinguishers, shop doors, AED's need to be listed in Maximo, and documented in file folders.

   CPUC Staff verified that fire extinguishers had correct inspection dates and were not blocked in any way. Shop jacks used to lift cars had inspection tags with dates of inspection.

Findings:
None.

Comments:

1. All forms need to be completely filled out with signatures provided. All hazards identified need verification of completed repair within a timely manner.
2. AirTrain personnel should revise forms to indicate that hazards and corrections are being tracked through Maximo.
3. AirTrain personnel should have someone review forms weekly and monthly making sure that all the correct data is being tracked and no important information is being missed and to ensure that paperwork has no errors. Add any roll-up doors to monthly inspections.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**14-C**	**Element**	**Facilities and Equipment Inspections: Bridges and Aerial Structures**
Date of Audit	June 12, 2019 10:00 am-12:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Madeline Ocampo Jamie Lau	**Persons Contacted**	Michael Robert (AAO) Lee Mithcell (AAO) Brian E. Kehoe, SE, (WJE, Consultant) Joseph Ferrer, Civil Engineer (SFO)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. San Francisco International Airport AirTrainn Guideway Structural Condition Assessment, Dated June 2014
4. APTA RT-FS-S-001-02 Rev 1 (APTA), Rail Transit Fixed Structures Inspection and Maintenance

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Bridges and Aerial Structures

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

1. Structures inspections were performed in accordance with reference criteria.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked until resolution.
4. The AirTrain Manager is aware of all safety hazards identified from Facilities and Equipment Inspection.

Activities:

1. AirTrain started service in 2003 and had its first guideway structural inspection in 2014. Through SFO Engineering Department, AirTrain hired a consultant WJE (Wiss, Janney,

Elstner Associates, Inc.) to assess its guideway structures. A report was produced in the same year titled "San Francisco International Airport AirTrain Guideway Structural Condition Assessment," and was written by a licensed structural engineer with 35 years of industry experience. The report recommended AirTrain to inspect guideway structures every 24 months. The report also recommended that AirTrain develop a structural inspection and maintenance procedure by based on APTA RT-FS-S-001-02 (APTA), Standard for Rail Transit Structure Inspection and Maintenance. At the time of the audit, Staff found that AirTrain did not have a guideway structure inspection and maintenance procedure. Furthermore, it did not inspect structures within 24 months per the recommendation in the 2014 assessment.

2. Staff reviewed AirTrain's 2014 structural assessment report. The report documented inspection methods, results, and recommended mitigations. The report identified seven locations with conditions that required immediate attention. Those conditions were repaired in September 2017. Staff found that the assessment did not recommend a timeline for repairing these seven conditions.

3. Staff reviewed AirTrain Repairs Scope of Work, Task Orders, Inspector Daily Reports, and photos of completed repairs for the seven conditions requiring immediate attention identified in the 2014 inspection. The seven locations were listed as Locations A through G in the Repairs Scope of Work. Each location, except Location C (northeast of Domestic Terminal 1 Station outside track), had an Inspector Daily Report and post-completion photo that indicated that conditions were repaired. For Location C, AirTrain was not able to locate its Daily Report. However, a post-completion photo was provided to Staff.

4. The AirTrain Manager indicated that he received the 2014 structural assessment report upon release. Safety hazards requiring immediate attention were corrected.

<u>Findings:</u>

1. At the time of the audit, Staff found that AirTrain did not have a guideway structure inspection and maintenance procedure, nor have they inspected the structures within 24 months per the recommendation in the 2014 assessment.
2. The 2014 assessment did not recommend a timeline for completing the repair for the conditions found. It is unclear to Staff whether these conditions were corrected in a timely manner. Furthermore, Location C repair was not documented with an Inspector Daily Report. Therefore, Staff was not able to confirm the date of repair, or who performed the repair.

<u>Comments:</u>

1. The 2014 structural assessment lacks a master map showing the area inspected relative to the entire AirTrain system. Staff was unable to tell if the assessment covered the entire or partial system. For the upcoming assessment report, Staff suggests that AirTrain

include a map of the entire system, with detailed cutout maps identified. Staff also suggest AirTrain to assign unique identification for each structure for inventory tracking.

2. APTA RT-FS-S-001-02 was revised in 2016. If AirTrain were to adopt APTA, it should use the latest version, APTA RT-FS-S-001-02 Revision 1.

Recommendations:

1. Following the recommendations of the structural engineer who authored the "San Francisco International Airport AirTrain Guideway Structural Condition Assessment," and suggested APTA RT-FS-S-001-002 Rev 1 standard, develop a structural inspection and maintenance procedure including but not limited to the following:
   a) "…information on the organization of the inspection program, inspection policies, procedures for quality control and quality assurance, inspection procedures, and scheduling. The structural inspection manual should also address requirements for post-earthquake inspections." – Item 1 of Additional Periodic Inspections, 2014 AirTrain Guideway Structural Assessment.
   b) A visual inspection of the guideway structure every 24 months, including procedures for follow-up inspections performed by qualified engineers of sites with possible significant deteriorations.
   c) A written summary report following each inspection documenting the significant findings with rated severity, recommended repair, and results of follow-up inspections.
   d) A computerized database to document the inspections and the locations of the significant items, recommended repair and completion date, repair status, and actual repair completion date. Creating such a database per APTA RT-FS-S-001-02 Rev 1, Section 3.2.1 and 4.4. Assign designated personnel to maintain this database.
   e) "On an annual basis, a walk-through inspection of the system should be performed using the walking platforms to identify the presence of debris or severe ponding of water. Debris, including any plant growth on the guideway structure, should be cleared from the guideway structure and areas of significant water ponding should be addressed." – Item 5 of Additional Periodic Inspections, 2014 AirTrain Guideway Structural Assessment,
   f) Reference the structural inspection and maintenance procedure in AirTrain's SSPP, Section 8 and Section 9.

2. Perform a guideway structural inspection as soon as possible. The last inspection was done in 2014. The inspection report recommends an inspection frequency of 24 months for bridge structures. The last inspection was more than 24 months at the time of audit.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)			
Checklist No.	**14-D**	**Element**	**Facilities and Equipment Inspections: Measurement and Testing Instrumentation**
Date of Audit	June 12, 2019 1:00-4:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	James Matus	**Persons Contacted**	Eric Riego Field Service Specialist Jessica Ibazeta, O&M Manager (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Procedure Control of Contractors
4. Contractors Maintenance Manual, Operations Manual and SOPs
5. APM System Contractors Monthly / Weekly Facility Inspections
6. APM System Contractors Site Safety Walk Inspection records
7. Safety and Security Committee Tracker

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Measurement and Testing Instrumentation
Interview responsible representatives, review appropriate records, and inspect a representative sample of measuring or testing instruments to determine whether:

1. The selected gauges, micrometers, calipers, torque wrenches, multi-meters, etc. are properly inventoried, stored, distributed for use, calibrated at prescribed intervals, and marked, tagged, or otherwise identified to show current calibration status.
2. The next scheduled testing/calibration due date is shown on each measuring or testing instrument.

FINDINGS AND RECOMMENDATIONS

Activities:

1. CPUC Staff reviewed documents pertaining to the calibration of tools. Bombardier personnel provided a master-list of tools for review requiring annual calibration. All tools from the master-list held certificates of calibration in a binder. All tools were calibrated by Standard Meter Lab. All tools reviewed were cross- checked from the master list to the certificates of calibration. All tools inspected held current certificates of calibration and were within the prescribed dates. All tools inspected had the proper ID tags attached to the tool requiring calibration. Tools are matched with tool ID and serial numbers.

   Tools inspected:

   - Torque wrenches with ID #'s 1001794, 1001995, and 1001192;
   - Fluke meters ID'#'s of 1003346, 1001370, 1003498, and 1003683;
   - Multi-meter ID # 1003684. Crimping tool ID # 1003348.

2. Bombardier personnel are mechanics trained not to use any tool that does not have an effective calibration date stamped on the tool. Random audits are being performed to make sure all tools are within calibration. If any tool is unrepairable it is removed from the master list. All specifications of calibration per individual tool are listed on its tool calibration certificate. All tools are properly inventoried.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**15-A**	**Element**	**Maintenance Audits and Inspections: Fixed Guideway Revenue Vehicles**
Date of Audit	June 12, 2019 2:00pm–5:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	James Matus	**Persons Contacted**	Eric LeVeque, QA/Stores (BTH) Hector Garcia, Wayside (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Maintenance Management Information System
4. AirTrain's APM Vehicle Equipment Manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Fixed Guideway Revenue Vehicles (FGRV)

1. Perform field observations of AirTrain Contractor personnel inspecting FGRV to determine if the following components are properly and adequately maintained:
   a. Axle-mounted gearbox
   b. Truck, axle, and wheel assemblies
   c. Brake systems
   d. Door assemblies
   e. Lighting
   f. Passenger doors
   g. Passenger component and safety appliances
   h. Public address and intercom systems
2. Review the maintenance records for each FGRV model for the past 3 years to verify:
   a. The preventive maintenance (PM) performed was at the required maintenance interval

b. The records were properly documented with the necessary review and approval
c. Noted defects were corrected in a timely manner

3. Verify if the AirTrain Contractor has performed their major change-out/overhaul of safety critical systems and or structural integrity of the FGRV as per maintenance procedures.

FINDINGS AND RECOMMENDATIONS

Activities:

1. CPUC Staff randomly selected FGRV's from the fleet and inspected them to determine if they are being properly maintained. CPUC Staff jointly inspected FGRV's with Bombardier maintenance personnel. CPUC Staff observed Bombardier maintenance personnel inspect the vehicles per their required bi-daily check list. The checklist had points of inspections to brakes, gearboxes, tires, compressors, doors, safety appliances, windshields, and lights. The inspection checklist also had points of interior inspection. CPUC Staff observed Bombardier maintenance personnel check off each item as it was inspected.

2. CPUC Staff randomly selected FGRV's for document review. Documents reviewed pertained to the maintenance intervals and whether they have been maintained within the proper mileage and time frame intervals. Bombardier maintenance personnel mentioned that they have a new blended system for maintaining their vehicles.

   CPUC Staff observed variances in the mileage within the 15K inspection intervals which were not being met within the proper intervals for cars #'s 9, 15, and 21. CPUC Staff also observed that documents were missing related to the required 90K inspections.

3. CPUC Staff also reviewed documentation of major overhaul change outs.

Findings:

1. Preventative maintenance intervals for 15K inspections are overdue per mileage acquired on vehicles for car #'s 9, 15, and 21. (2017-2018)
2. Records for required 90K inspections missing for car #'s 9, 15, and 21. (2017-2018).

Comments:
Bi-daily inspections need to be done closer to the required inspection dates.

Recommendations:

1. The required 15K inspections must be met within their proper timeframes for proper maintenance of the vehicles.
2. All documentation and records of these required inspections must be maintained in a manner to where they are readily accessible and reviewable. All records need to be kept on file.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**15-B**	**Element**	**Maintenance Audits and Inspections: Signal System, Data Transmission System, Vital Relay Maintenance, & Traction Power System**
Date of Audit	June 11, 2019 8:00 am –12:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Shane Robertson Steven Espinal	**Persons Contacted**	Justin Charshaf, Vehicle FSE (BTH) Dominic Moreland, PDS Comm (BTH) Eric LeVeque, QA/Stores (BTH) Hector Garcia, Wayside (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Maintenance Management Information System
4. AirTrain's APM Vehicle Equipment Manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Signal System, Data Transmission System, Vital Relay Maintenance, & Traction Power System

1. Perform field observations of AirTrain's Contractor personnel inspecting the Signal System, Data Transmission System, Vital Relays & Traction Power System components to determine whether they are in compliance with applicable reference criteria. Select at least one fixed guideway section or component and conduct field inspections.
2. Review the maintenance records for these components for the past 3 years to verify:
   a. The preventive maintenance (PM) performed was at the required maintenance interval

b. The records were properly documented with the necessary review and approval
c. Noted defects were corrected in a timely manner

FINDINGS AND RECOMMENDATIONS

Activities:

1.-2. CPUC reviewed all Vital Relay records to make sure they were up to date, randomly reviewed test records to make sure they were within specifications and conducted a field inspection.

Findings:

1. CPUC noted Air Train personnel placed stickers over manufacturers specifications and identification tags.
2. Yearly circuit breaker testing was not conducted yearly as dictated by AirTrain procedure. No circuit breaker testing was conducted in either 2017 or 2018. Meggar testing, which should have been done biennially, was not conducted in 2017 or 2018.

Comments:

None.

Recommendations:

1. ID tags give vital information (pick up and drop away values set by manufacturers) for inspectors testing vital relays. Air Train must remove, discard and/or relocate sticker as to not obstruct view of manufacture label or ability to visually inspect relay contacts.
2. AirTrain and its contractor must conduct both circuit breaker and Meggar testing as dictated by Airtrain procedures. The procedures dictate circuit breaker testing yearly and Meggar testing biennially.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**15-C**	**Element**	**Maintenance Audits and Inspections: Fixed Guideway**
Date of Audit	June 13, 2019 12:00–2:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Sal Herrera Shane Robertson	**Persons Contacted**	Hector Garcia, Wayside (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Fixed Guideway

1. Perform field observations of AIrTrain's Contractor personnel inspecting the fixed guideway to determine whether they are in compliance with applicable reference criteria. Select at least one fixed guideway section and conduct a field inspection.
2. Review the maintenance records for these components for the past 3 years to verify:
   a. The preventive maintenance (PM) performed was at the required maintenance interval
   b. The records were properly documented with the necessary review and approval
   c. Noted defects were corrected in a timely manner

FINDINGS AND RECOMMENDATIONS

<u>Activities:</u>

1. CPUC Staff performed a field observation of AirTrain's personnel performing a guideway inspection.

2. CPUC Staff also reviewed the maintenance records for the past 3 years. Staff identified examples where inspections exceeded the inspection intervals for both power rail and guideway switches. Regarding switches, AirTrain asserts that based on the system configuration and AirTrain operations, some switches operate just a few times daily, as for example when trains enter and leave service, while other switches operate many times per day, so inspecting switches that undergo less use and operations is appropriate.

Findings:
None

Comments:
1. Every attempt should be made to conduct inspections on the established intervals and the use of the float period (example…90-day inspections have a float period that allows up to 101 days) should only be used for emergencies, examples...short staff due to holiday/vacation schedules, work related emergencies affecting the ability to complete on the scheduled day.

2. CPUC Staff has concerns with PM schedules on switch maintenance that AirTrain and its contractor have established. Bombardier should determine the appropriate inspection frequency and inspect each switch on regular 45- or 90-day inspection interval and develop an inspection schedule that it follows based on the analysis and decisions made in setting up the program.

Recommendations:
None

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**16**	**Element**	**Training and Certification Programs for Employees and Contractors**
Date of Audit	June 12, 2019 8:00–10:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Michael Rose Richard Fernandez	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Jessica Ibazeta, O&M Manager (BTH) Justin Charshaf, FSE Supervisor (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Training Documentation
4. Cal-OSHA Safety Orders
5. SFIA AirTrain Certification Policy

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs for Employees and Contractors
Interview representative in charge of Controllers and Maintenance employees Certification Programs. Review appropriate records to determine whether:

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. Verify corrective actions taken to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:

1.-2. CPUC Staff reviewed three Controllers (Operators) and four Technicians personal training records. CPUC Staff utilized the SFIA AirTrain Certification Policy (SFIA-SP 001-01-03) located in the SSPP to ascertain certification requirements. AirTrain has also created spreadsheets to track when the employee is due re-certification. The spreadsheet lists the date of certification, when recertification is due, and score obtained on test results with any required remedial training.

Findings:

1. AirTrain does not provide Personal Electronic Device (PED) Training or Refresher training that meets the requirement as outlined in CPUC General Order 172 Section 5.3.

Comments:

None.

Recommendations:

1. AirTrain must notify and instruct their employees on the provisions of AirTrain's PED Zero-Tolerance policy and program regarding electronic device use during the initial training. AirTrain shall provide a refresher course on its zero-tolerance policy and program at least every two years as part of their re-certification program.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**17**	**Element**	**Configuration Management and Control**
Date of Audit	June 11, 2019 11:00 am–12:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Madeline Ocampo Rupa Shitole	**Persons Contacted**	Jessica Ibazeta, O&M Manager (BTH) Eric Riego, FSE Supervisor (BTH) Alfredo Hinojosa, SDC Director (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's SFO APM Modification / Change Request Form
4. AirTrain's APM System Contractors System Configuration Management Plan
5. Directive Control of Documents/Data and Records
6. Procedure: Engineering Change Approval and Documentation

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Configuration Management and Control

1. Randomly select two recent changes pertaining to APM system at AirTrain 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 Project Concept Submitted to AirTrain Administration Office and verify that:
    a. SFO APM Modification / Change Request forms were used.
    b. Forms were circulated to the AAO.
    c. AAO performed a review, analysis, and approval of form by completing the SFO APM Modification / Change Request form for the project.
    d. The change was reviewed and approved by AirTrain Manager.
    e. Change was circulated to the proper departments for implementation.
    f. All necessary parties or contract employees within or outside the agency were properly notified about the change.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff interviewed BTH representatives related to Configuration Management and Control program and determined the following:

1. AirTrain had no configuration changes to their existing system for the past 3 years. Currently, AirTrain is undergoing an extension project that includes train control upgrades, a new hotel station, and a new Lot DD for long term parking. The Lot DD is physically separate from the new hotel station. The new extension may have had some changes, but the designated CPUC representative receives copies of the project updates and is involved during safety certification process. The project Safety Certification Plan was approved by the Commission via Resolution ST-205. The hotel station and train control upgrades were placed in service in late 2019, and the Lot DD extension will be activated after testing is completed for all phases. AirTrain will safety certify these projects to CPUC in accordance with General Order 164-E through the submission of a Safety Certification Verification Report. So far CPUC Staff have witnessed some project testing.

2. The AirTrain Executive staff is involved in weekly project meetings with new projects like extensions and upgrades and they use the Field Modification Instruction (FMI) for any changes to be approved and implemented on those projects. The existing system AirTrain and BTH personnel don't have any interaction with the new projects except for the BTH Service Delivery Center (SDC) Director, who reviews, approves, and comments on the new project submittals. CPUC Staff reviewed FMI SFOB-0129-01 titled "TRS Cradle modifications" as an example of a project concept submitted to AirTrain. The Train Registry System (TRS) Cradle is part of the current train control upgrades and is specifically used to identify train number and location automatically. The above reviewed FMI was still under review and approval by BTH. The Engineering Change Notice (ECN), which precedes an FMI, gets released once the FMI is implemented. After the completion of a project, AirTrain will receive all documentation in a final packet and affected departments are notified of changes.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**18**	**Element**	**Local, State, and Federal Requirements**
Date of Audit	June 18, 2019 9:00–10:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Yan Solopov Patrick Donnelly	**Persons Contacted**	Alfredo Hinojosa, SDC Director (BTH) Michelle Washington, HSE Specialist (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Cal-OSHA Safety Orders
4. AirTrain's APM System Contractors Tool Box Meeting records
5. AirTrain's APM System Contractors All Employee Meetings (AEM)
6. AirTrain's APM System Contractors Safety Concern Hazard Near Miss program

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Local, State, and Federal Requirements

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

1. AirTrain's Contractor held monthly meetings on safety issues.
2. An appropriate procedure and reporting form is being implemented and is periodically distributed to all employees to effectively report safety hazards in the work place.
3. Required corrective actions have either been satisfactorily completed or are being actively tracked and documented.

FINDINGS AND RECOMMENDATIONS

Activities:

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

- Presentation slides and agenda for AirTrain's monthly management meeting, dated April 9, 2019.
- Presentation slides for AirTrain's monthly all-employee meeting, dated April 18, 2019.
- Roll call / sign-in sheets for the three separate shifts of AirTrain staff to attend the all-employee meeting.
- Five open Safety Concern/Hazard and Near Miss (SCHNM) Reports, which track planned and executed corrective actions.

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

1. AirTrain holds monthly meetings for all management staff to discuss safety issues. These are typically scheduled on the first Wednesday of each month. Each department head must attend and provides a topic to discuss. The attendees design the agenda for the monthly all-employee meeting. The PowerPoint presentation slides staff reviewed appeared to be well-written and organized and covered a broad range of topics.
   AirTrain holds monthly all-employee meetings to discuss safety issues. These are typically held on the second Tuesday or Thursday of each month. Three identical meetings are held – one for each shift. Issues discussed include pressing safety matters/talking points, operations and maintenance matters, toolbox issues, and engineering issues on-site.
   AirTrain holds monthly "Tool Box" meetings. These include supervisors discussing various safety topics with their employees. The range of topics discussed is broad; for example, an item recently covered was back safety when lifting.
   When a shift ends and a new shift begins, staff from both shifts confer to hold a "Passdown" meeting. Shift staff here inform the next shift about current safety issues to be aware of.
2. -3. The safety manager tracks SCHNMs, or corrective actions, through an Excel spreadsheet. The reviewed SCHNM records appeared to be well-written and organized. There are approximately three to eight new SCHNMs per month. Smaller issues that can be addressed on-the-spot do not result in a SCHNM record being created. AirTrain staff report that SCHNMs are addressed in a timely manner.

Findings:
None.

Comments:

None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**19**	**Element**	**Hazardous Materials Program**
Date of Audit	June 14, 2019 10:00–11:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Patrick Donnelly Yan Solopov	**Persons Contacted**	Eric LeVeque Field Storage Specialist (BTH) Peggy Kiriaze, Buyer (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. Santora Sales Hazard Communications Program and the Blood borne Pathogen Training Program
4. AirTrain's APM System Contractors Hazardous Communication Program
5. AirTrain's APM System Contractors MSDS
6. AirTrain's APM System Contractors Spill Log
7. AirTrain's APM System Contractors Monthly / Weekly Facility Inspections
8. OSHA, General Order, Title 8

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazardous Materials Program

1. Select at random two AirTrain's Contractor personnel 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 3 years have been prepared and filed.
3. Verify all Safety Data Sheets (SDS) are available to all personnel who handle hazardous materials

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff requested the required training records from two Bombardier Transportation Holdings employees involved in hazardous waste management selected at random from a list of employee names.
    - Justin Viduya – HazMat Training 03/30/2019; Hazard Communication Training 08/08/2018; and PPE Training 04/24/2019
    - Jossue Vasquez – HazMat Training 03/30/2019

    Staff also viewed (DOT HazMat General & Security Awareness & Function Specific) Training certificates for both Eric LeVeque – 04/25/2017 to 04/25/2020 and Peggy Kiriaze – 04/13/2017 to 04/13/2020.

    Staff reviewed printouts and presentations taken from the coursework offered to BTH employees and easily accessible on MasterNet. Staff determined that the training adequately addressed the areas of reporting requirements, product release or spill, and the response and cleanup of spill incidents.
2. AirTrain has not experienced any hazardous spills requiring reporting during the past three years. Hazardous materials discharge/spill reports are available on SharePoint. In the event of a hazardous spill, the BTH employee(s) on the site would immediately contact BTH's safety management, who would then notify the San Francisco International Airport, the designated party to address hazardous spill incidents at AirTrain.
3. BTH has seven binders containing copies of their Safety Data Sheets (SDS) located on a shelf at the maintenance floor, which is where employees use all the chemicals. They are available for review at all times to all AirTrain and BTH employees who know about these sheets through their hazard communication / Global Harmonizing System (GHS) training. AirTrain only utilizes physical binders rather than offering on-line or electronic varieties, in order to avoid the use of electronics on-site. The binders are organized alphabetically with tabs dividing letters to assist a user in quickly finding the proper SDS sheet. Staff verified that the binders were out and available to all employees (verified location: Third floor). In the event that BTH plans to use a

new chemical in the future, they will review the SDS for it and add it into the SDS binders accordingly.

Findings:
Staff learned that BTH recently changed the method in which they store training records resulting in some records of employees only having dates for completed training rather than a viewable certificate. This results in an inability to support the date entered into the database with any actual documentation.

Comments:
None.

Recommendations:
Staff recommends that BTH keep at minimum the most up to date certificate of required training for all employees.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**20**	**Element**	**Drug and Alcohol Program**
Date of Audit	June 12, 2019 9:00–10:00 am	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Madeline Ocampo Jamie Lau	**Persons Contacted**	Frank Del Gaizo, Human Resources Advisor (BTH, Called-in) Alfredo Hinojosa, Site Director (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Corporate Drug and Alcohol Policy
4. Employee File Review

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Drug and Alcohol Program

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

1. Verify AirTrain's Contractor has a policy for managing the use of over-the-counter drugs.
2. Select at least two safety-sensitive employees who tested positive for drugs or alcohol in the past 3 years and determine whether:
   a. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP);
   b. The employee was administered a return-to-duty test with verified negative results;
   c. Follow-up testing was performed as directed by the SAP according to required follow-up testing frequencies in the reference documents after the employee returned to duty.
   d. Employees who retested positive are disciplined.
   e. Verify that consequences for repeat offenders were carried out as required in the reference material.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff reviewed Bombardier's Policy AME – 5 "Drug and Alcohol Use and Testing at Sites" Section 8 and confirmed that it covers a policy for over-the-counter drugs. The last revision was February 2, 2011 and AME stands for Americas. AME-5 was written for all Bombardier facilities nationwide.
2. Staff reviewed records of 3 employees who tested positive within the past 3 years. The employees were evaluated positive by an MRO (medical review officer) but were terminated and did not return to duty per Bombardier's local zero-tolerance policy. The zero-tolerance policy is a verbal policy that the Human Resources Advisor goes over with every employee at the time of hiring, on their first day of work, and every time another employee tests positive. Per the zero-tolerance policy, there is no return-to-duty testing, in which an employee tests positive, stops working to receive treatment, and is retested before returning to work. Staff verified that the subject employees were terminated according to their Badge Holder Termination Request forms showing date of separation.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**21**	**Element**	**Procurement Process**
Date of Audit	June 18, 2019 1:00 – 2:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Yan Solopov Patrick Donnelly	**Persons Contacted**	Peggy Kiriaze, Buyer (BTH) Eric LeVeque, QA/Stores (BTH)

REFERENCE CRITERIA

1. General Order 164-D/E
2. AirTrain System Safety Program Plan (SSPP) Revision 3.3
3. AirTrain's APM System Contractors Procurement Quality Assurance Procedures
4. AirTrain's APM System Contractors MSDS
5. SDC Materials Management
6. Shipping and Receiving
7. RMR Process (Return Material Report)
8. Calibration of SDC Tools and Test Equipment

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Procurement Process

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

1. Verify AirTrain's Contractor personnel are following applicable Procurement Policy and Procedures and ensure safety issues and concerns are addressed in the procurement process.
2. Determine adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the APM System.
    a. Are procurements of new equipment and material first reviewed by the engineering, operations, and/or maintenance staff to verify the new equipment or materials won't present a hazard to the existing system?
    b. Do all procurement processes for hazardous materials address all appropriate rules and regulations?

c. Have unexpected delays or process complications delayed the procurement of goods or services available for usage or resulted in vendor provided services being acquired and implemented in a timely manner?

FINDINGS AND RECOMMENDATIONS

Activities:
CPUC staff interviewed and AirTrain staff and reviewed documentation related to AirTrain's procurement and equipment calibration processes.

1. Staff requested policy guidelines related to procurement / calibration and learned that these processes are dictated by the following documents:

- Shipping and Receiving (#002558, effective 1-12-2006)
- SDC Materials Management (#002557, effective 12-1-2006)
- SDC Procurement (#002556, effective 1-12-2007)
- Calibration of SDC Tools and Test Equipment (#002560, effective 1-12-2006)

Staff learned that the procurement process is generally performed as such:

- AirTrain staff determine a need for parts and identify their part number.
- AirTrain's Buyer, Peggy Kiriaze, orders the parts from AirTrain's Pittsburg plant via a Purchase Order (PO).
- Staff of the Pittsburg plant locate a vendor and order the part, utilizing the 'Maximo' system.
- The part arrives at the Pittsburg plant, where it is tested through a quality assurance (QA) process.
- The part is then shipped to SFO AirTrain staff.

In some recent cases, AirTrain staff have bypassed Steps 4 and 5, and have requested that parts be shipped to AirTrain directly. In these cases, AirTrain's engineering staff have performed the QA process. AirTrain staff report that this altered process works well and saves time.

2. When parts are damaged from use, they are sent to the Pittsburg plant through a Return Material Report (RMR). The process of repairing or replacing parts functions similarly the procurement process described above.

Peggy Kiriaze and Eric LeVeque oversee the calibration process. Tools and test equipment, both permanently owned or rented, are regularly calibrated, and are marked with labels. These indicate when the last calibration occurred and when the next one must be completed. According to AirTrain staff, calibration is done in a timely manner.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**22**	**Element**	**General Order 172 – Personal Electronic Device Prohibitions/In-cab Cameras**
Date of Audit	June 11, 2019 10:00-11:00 am	**Department(s)**	AirTrain Administration Office (AAO) Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Arun Mehta	**Persons Contacted**	Lee Mitchell, Manager (AAO) Michael Robert, Assistant Manager (AAO) Michelle Washington – HSE Specialist (BTH) Alfredo Hinojosa, SDC Director (BTH)

REFERENCE CRITERIA

1. General Order 172
2. General Order 164 D/E
3. AirTrain System Safety Program Plan (SSPP) Revision 3.3
4. AirTrain PED Zero Tolerance Policy (OPM-023 Rev 09 SFIA PED Policy)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

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

Interview appropriate representatives and review documentation to determine the following:

1. Determine if AirTrain's Contractor has developed and implemented a PED zero-tolerance policy and program usage, as required by General Order 172, Section 5.
2. Is the zero-tolerance policy being enforced?
3. What is the failure rate of in-cab cameras and how many cameras failed in the last three years? Verify the recording retention complies with General Order 172.
4. Verify AirTrain's Contractor has conducted random evaluations for PED usage as

required by General Order 172, Sections 4.3.e, 4.5, and 6.2.

5. Does the PED procedure comply with General Order 172?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff met with San Francisco International Airport (SFIA) AirTrain Administrative Office (AAO) staff and Bombardier Transportation Holdings (BTH) staff at their offices and conducted the audit. The audit was performed following the list of elements described above.

Following is the description of the audit interview:

1. BTH has developed AirTrain PED Zero Tolerance Policy (OPM-023 Rev 09 SFIA PED Policy), based upon and as required by General Order 172, Section 5. They perform routine review of the SOP and have made 9 revisions since 2008.
2. BTH performs random inspections of its personnel throughout its system and has found some violations during the last three years, which have been documented and the violators have been disciplined according to their SOP. Staff reviewed documents pertaining to two employees who violated the PED policy on 4/4/18 and 5/3/18. They were both provided with disciplinary written warnings per the Zero Tolerance Policy SOP.
3. During the last three years, there are no documented failures of the in-cab cameras which are routinely maintained. The hard drives on cameras of all the trains were replaced with a newer technology hard drives starting in 2016. The camera drives retain their recordings for about 3 weeks prior to taping over again. If an instance of PED violation is suspected a separate copy of the camera recording is made immediately and kept separately as evidence.
4. BTH supervisors and engineers perform routine inspection of about twenty items and document their findings on forms entitled "System Efficiency Testing, Observation, Safety Tour" during all the three shifts at approximately twice a week frequency. These inspections are unannounced and random and associated with general efficiency testing and although not specific for the intent of looking for PED violations, they are inclusive and if PED violations are detected, a detailed subsequent follow-up including counseling and discipline are rendered. These forms are stored in binders. Staff sample reviewed some of the binders provided by BTH.
5. Staff reviewed in details AirTrain's Zero Tolerance Policy (OPM-023 Rev 09 SFIA PED Policy) and found it to comply with GO 172 provisions. No exceptions were noted.

Findings:
None.

Comments:
None.

Recommendations:
None.

2019 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN FRANCISCO INTERNATIONAL AIRPORT AIRTRAIN AUTOMATED PEOPLE MOVER (AIRTRAIN)

Checklist No.	**23**	**Element**	**General Order 175-A – Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems**
Date of Audit	June 13, 2019 2:00–4:00 pm	**Department(s)**	Bombardier Transportation Holdings (BTH)
Auditors/ Inspectors	Sal Herrera Shane Robertson Eric Madreo	**Persons Contacted**	Hector Garcia, Wayside (BTH) Eric Riego, FSE Supervisor (BTH)

REFERENCE CRITERIA

1. General Order 175-A
2. General Order 164-D/E
3. SIA APMS System Safety Program Plan (SSPP), Revision 8 – 11
4. AirTrain Roadway Worker Protection Plan

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 175-A - Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems
Interview appropriate representatives and review documentation to determine the following:

1) Determine if AirTrain's Contractor is following their procedure and adhering to General Order 175-A.
2) Verify RWP training records and compliance testing (Sections 9.3 and 9.4) has been performed and:
    a. Verify no employees are required to perform work without training, at maximum intervals of 24 months.
    b. Training/re-training sessions sign-in sheets with different job classifications and training certificates for the past 3-years are on-file
3) Verify AirTrain's Contractor maintains a record of near miss program documents, unsafe acts, right to challenge history and training

including 24-month retraining.

4) Verify RWP complies with yard and end-of-line storage track requirements.
5) Witness a job safety briefing if possible and work site for verification (Field Activity - See Checklist 15-A, B, C).
6) Verify if roadway workers have a roadway worker rule book (Field Activity - See Checklist 15-A, B, C).

FINDINGS AND RECOMMENDATIONS

Activities:
CPUC interviewed Airtrain representatives and reviewed documentation to determine if their procedures are adhering to General Order 175-A. and Verified RWP training records and compliance testing (Sections 9.3 and 9.4) have been performed, training/re-training every 24 months. All training/re-training sign-in sheets with different job classifications and training certificates for the past 3-years are on-file. RWP complies with yard and end-of-line storage track requirements and witnessed a job safety briefing.

Findings:
None.

Comments:
None.

Recommendations:
None.