San Francisco
Bay Area Rapid Transit District

Public Transportation Agency Safety Plan

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1.0 Safety Management Policy Statement

The San Francisco Bay Area Rapid Transit District strives to provide safe, reliable, clean, quality transit service that increases mobility and accessibility, strengthens community and economic prosperity, and helps preserve the Bay Area's environment. Safety is the foundation upon which the District supports all functions including planning, design, construction, testing, maintenance, and operations of the rail transit system. To meet these goals, five safety objectives are established:

1. To avoid loss of life, reduce injury and minimize damage or property loss;
2. To administer and oversee safety assurance programs District-wide;
3. To instill an awareness of and to promote safety in all District employees and contractor personnel;
4. To provide for the identification and elimination or control of hazards through a systematic approach of auditing and analyzing the operational system and the work environment; and
5. To minimize hazards in new facilities by building safety into the design through adherence to applicable codes and standards, use of sound engineering judgment, and implementation of a detailed safety certification program.

The System Safety Department is directed and empowered to develop, implement, and administer a comprehensive Public Transportation Agency Safety Plan (PTASP) across all three BART modes. The plan emphasizes preventive activities and responsibilities of each department to identify, control, and resolve hazards during design, development, and operational phases of transit service. In addition, where it is determined that unsafe conditions or practices exist, the Chief Safety Officer has the authority to order such conditions corrected or practices halted. This includes the interruption of revenue service, if conditions warrant.

Each department, regardless of mode, shall support the PTASP and cooperate in the achievement of the established goals and objectives.

Accountability for safety rests with each employee, supervisor, and manager; however, the General Manager accepts the ultimate accountability for the District's safety performance across all modes. All are responsible for meeting the safety requirements inherent to their positions. Individual employees must comply with the safety rules and procedures applicable to their work duties. Supervisors and managers must enforce safety standards applicable to their departments.

The System Safety Department will consult with other District departments in the achievement of established safety goals and objectives. It is the duty of each BART employee to cooperate with the System Safety Department and to provide that Department with any information requested to aid in any investigation, inspection or scheduled or unscheduled audit.

As required by 49 CFR Part 673, this plan, which encapsulates the District's commitment to continuously monitor, measure, and improve safety performance, has been approved by the Board of Directors and endorsed by the General Manager who also acts as the Accountable Executive.

_____ _____

Robert M. Powers, General Manager/Accountable Executive Date

2.0 Transit Agency Information

The Bay Area Rapid Transit (BART) District Public Transportation Agency Safety Plan (PTASP) follows the requirements set forth by 49 CFR Part 673, wherein public transportation agencies receiving federal funds are required to create a PTASP based on the Safety Management System (SMS) approach. The Federal Transit Administration (FTA) defines SMS as:

> "the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices, and policies for managing risks and hazards."

This plan succeeds the former System Safety Program Plan (SSPP) and therefore builds on the safety practices and activities detailed in the SSPP while incorporating the components of SMS, including a restructured approach to providing for Safety Management Policy, Safety Risk Management, Safety Assurance, and Safety Promotion. Moreover, this PTASP outlines the safety practices and principles for all of the District's rail transit services.

While Part 673 requires development of a PTASP, 49 CFR Part 674 authorizes state safety oversight (SSO) of rail fixed guideway public transportation systems to review and approve the PTASP. 49 CFR Part 672 establishes requirements for safety related training for rail transit agencies, and 49 CFR Part 670 establishes requirements for a National Public Transportation Safety Plan, which guides the nationwide effort in managing the safety risks and safety hazards within the nation's public transportation systems. It establishes safety performance measures described in this PTASP and serves as the Federal Transit Administration's framework for implementation of SMS and improved safety for rail transit nationwide. Relevant requirements of 49 Parts 670, 672, 673, and 674 are included in the District PTASP. All parts, including the content of this PTASP, are required and overseen by the California Public Utilities Commission (CPUC) SSO agency.

2.1 History

A tax-funded rail transit system serving the San Francisco Bay Area was first conceptualized in 1947 as the Transbay Tube (TBT). Following the dissolution of the privately-owned Key System, which ran electrified streetcars across the Bay Area and on the lower deck of the Bay Bridge, the California State Legislature founded the BART District in 1958 to address its growing traffic congestion. The Legislature retained a firm of consulting engineers, Parsons-Brinckerhoff-Tudor-Bechtel (PBTB), between 1957 to 1962 to draft tentative routes for a 120 (+/-) mile system of rail in five bay area counties. In 1962, three of the five counties approved the construction of the 75 miles of the network within their jurisdiction. Engineering studies and design work began in 1963 and the first construction contracts began in 1964 for both aerial lines and the underwater TBT.

The District divided the 75 miles of lines and 34 passenger stations into 48 separate contracts with the largest being the TBT. The main link in the BART System is between downtown Oakland and San Francisco. Four BART lines serving the East Bay converge at the Oakland Wye and funnel into this main stem. September 11, 1972 marks the opening day of passenger revenue service for BART, while the first passenger-carrying trains to use the TBT opened later in September 1974.

On November 22, 2014, the District opened its second rail transit modality, the Oakland Airport Connector (OAC); a 3.2-mile spur extending from Coliseum Station to the Oakland International Airport

Station. The line replaced the former AirBART shuttle bus service with a cable-drawn, driverless Automated People Mover (APM) operated by Doppelmayr Cable Car (DCC) under a 20-year Operations and Maintenance (O&M) contract.

The OAC project began in October 2010 when the District awarded Flatiron and Parsons (FPJV) and DCC a contract to design, build, operate, and maintain the APM system. DCC was awarded a portion of the design-build contract to design, manufacture, and supply the APM system and guideway.

On May 25, 2018, the District opened its third rail transit service, the East Contra Costa County Transit Project (eBART) approximately seven years after construction began. eBART represents an expansion of rail service into Eastern Contra Cost County. eBART provides a cost-effective way to bring rail service to Antioch and the rest of the east Contra Costa County. eBART provides East County with frequent, reliable, and high-quality rail service that connect the growing region of East Contra Costa County with areas served by BART. The extension uses Diesel Multiple Unit (DMU) rail technology to extend eastward from the existing BART system at the Pittsburg/Bay Point BART Station in the median of State Route 4 to Antioch. The project included vehicle procurement, modifications to the existing BART tail tracks at the Pittsburg/Bay Point Station, Transfer Platform construction at the Pittsburg Bay Point Station that interfaces with the existing BART system, approximately 10 miles of double track in the median of State Route 4 (SR4), a station in the median of SR4 at Railroad Avenue Interchange, a station in the median of SR4 at the Hillcrest Interchange, a parking lot, yard and a maintenance facility.

2.2 System Description

2.2.1 BART

Scope of Transit Service

The District provides fully automated, high speed, urban commuter rail mass transportation for the people of the San Francisco Bay Area, serving the people of San Francisco, Contra Costa, San Mateo, and Alameda Counties. There are five established routes comprising the heavy rail BART system: Richmond to Daly City/Millbrae, Fremont to Richmond, Fremont to Daly City, Pittsburg/Bay Point to SFO/Millbrae, and Dublin/Pleasanton to Daly City. The BART System typically operates from 5:00 A.M. to midnight Mondays through Fridays, 6:00 A.M. to midnight on Saturdays, and 8:00 A.M. to midnight on Sundays and Holidays. In some cases, BART service extends past midnight, with the schedule for the last train beginning at around midnight.

Physical Plant

Structures

The BART rail alignment follows established travel corridors. The current operating system consists of approximately 119 miles of double track. This track is comprised of approximately 63 miles of at-grade exclusive right-of-way, 27 miles of aerial structure, 25 miles of underground construction, and 4.75 miles of underwater tube linking San Francisco with Oakland. All grade-level right-of-way are fenced. All trackway includes an electrified third rail approximately 12” above the running rails.

The underground trackways include two major tunnels, one through the Berkeley Hills and one under the San Francisco Bay. The Berkeley Hills Tunnel is approximately 3.5 miles long, and consists of two separate bores, connected with cross passages. The Transbay Tube is approximately 4.75 miles long and consists of two trackways with a center gallery. The tunnel is constructed of 330 feet sections which were sunk to the bottom of the bay and connected. Each of the 330 feet sections includes a door

leading from the gallery to the trackway. At each end of the Transbay Tube, there are ventilation structures. Each of these ventilation structures is designed to extract smoke from the Transbay Tube.

The underground and underwater rights-of-way are provided with wet standpipe systems for fire suppression. These line sections are also provided with communications equipment for the express purpose of emergency response.

There are crossovers and/or pocket tracks at various locations to permit turn backs, single tracking or storage. They are spaced so that 20-minute service can be maintained in each direction between most crossovers using only one track. Trains can be operated in alternate directions under fully automatic train control.

Stations

There are 48 passenger stations on the System: 19 are in Alameda County, 8 in San Francisco, 11 in Contra Costa County, and 6 in San Mateo County. Of those stations, 14 are aerial, 15 subway, and 19 are at grade.

Stations, except the two eBART stations, are staffed with Station Agents who provide assistance in system usage and directional information to patrons as well as emergency service support. In addition, they monitor station facilities for station maintenance and patron safety.

Several of the stations also serve as inter-modal connection points, with major transfer points with locally operated bus systems. Four downtown San Francisco stations include underground platforms for the San Francisco Municipal Transportation Agency light-rail vehicles. Local bus companies, Caltrain and Amtrak trains, and ferries provide convenient commuting for BART patrons to and from all stations.

Vehicles

BART's existing fleet of 669 heavy-rail vehicles began operation in 1972 when the service began. BART trains can vary in train length depending on operational decisions for needed capacity. BART is currently replacing the existing fleet with 755 new "Fleet of the Future" cars, with introduction of some cars into revenue service, with the remainder of the order to enter service in the years to come.

2.2.2 eBART

Scope of Transit Services

BART service on the Concord line currently consists of one route, typically with a 15-minute base service, Monday through Friday, and a 20-minute service evenings and weekends. eBART trains are scheduled to meet all BART base trains at the Transfer Platform that is located approximately 2,000 feet east of Pittsburg Bay Point Station. All passenger transfers between eBART and BART will take place via the Transfer Platform. Service to the Pittsburg Bay Point Station currently operates weekdays between 5:00 A.M. and 1:30 A.M the following day, Saturday between 6:00 A.M. and 1:30 A.M. into Sunday, and Sunday between 8:00 A.M. and 1:20 A.M. into Monday.

Physical Plant

eBART Phase I utilizes Diesel Multiple Unit (DMU) trains on 10 miles of standard gauge double track, in the median of SR4, to provide connecting rail service to BART. These tracks are separate from and incompatible with the existing BART system. BART riders can transfer to the eBART system at the Transfer Platform east of Pittsburg/Bay Point Station to either Pittsburg Center or Antioch Stations, all of which are integrated into the existing BART fare system. The Transfer Platform is located at Pittsburg

Bay Point Station, which interfaces with the existing BART system; the remaining system includes a station at the Railroad Avenue Interchange (Pittsburg City Center Station); a station in the median of SR4 at the Hillcrest Interchange (Antioch Station); and a parking lot, yard, and maintenance facility east of the Hillcrest interchange and north of the SR4 Right-of-Way.

The eBART Maintenance and Operation facility is located in Antioch, CA. All operational and maintenance functions are located at this facility, including the control center, operations, systems and vehicle maintenance, fueling, train washing, train storage, procurement, parts storage, administration, and safety.

2.2.3 OAC

Scope of Transit Services

The system consists of four three-car trains operating in a pinched loop configuration on two separate lanes between BART's Coliseum Station and the Oakland International Airport Station.

Physical Plant

The automated people mover (APM) system is a fully automated driverless transportation system operating along a 3.2-mile, partially elevated, partially at-grade, partially below grade, dual side guideway providing a comfortable and reliable link between the Airport Station and Coliseum Station. The APM system operates with up to four 3-car trains. The elevated structure is of a tubular welded steel truss construction. The ground-level structure is located in front of the Oakland Airport runways. The subway structure is under Doolittle road.

Each station consists of a single-sided passenger boarding platform with a barrier wall and automatic platform door system separating the passenger platform from the guideway tracks. Near the mid-point of the end stations is the maintenance and storage facility, or Wheelhouse, which contains the Central Control Room, the ropeway drive machinery, and provisions for trains to be stored off the mainline for maintenance.

2.3 Key Agency Leadership and SMS Responsibilities

To ensure that rail operations are conducted in the safest manner possible, transit system personnel have distinct roles and carry out specific responsibilities in providing for on-going safety in rail transit operations and maintenance activities. These responsibilities and roles are summarized in this chapter.

2.3.1 General Manager / Accountable Executive

The General Manager is charged with the responsibility of administering the operating and business affairs of the District consistent with policies set by the Board of Directors, hiring Department Managers and ensuring that they carry out plans to further the District safety goals and objectives. As the Accountable Executive, the General Manager accepts the ultimate accountability for the District's safety performance. Additionally, he or she is ultimately responsible for carrying out the District's PTASP; has control and direction over the human and capital resources needed to develop and maintain both the District's PTASP and transit asset management plan; and ensures action is taken, as necessary, to address substandard performance in the SMS.

The General Manager's responsibilities include, though are not limited to, the following:

- Administering the operating and business affairs of the District consistent with policies set by the Board of Directors;
- Hiring Department Managers and ensuring that they carry out plans to further the District goals and objectives;
- Approving and signing the PTASP and any revisions following document review and acceptance by the appropriate departments;
- Communicating with the Chief Safety Officer on the District's safety goals and objectives, remaining informed of their levels of attainment and of any extraordinary safety matters that may have significant District impact;
- Ensuring that funding is prioritized for needs having a safety impact, in accordance with SMS;
- Receiving investigation reports for a major accident/incident;
- Approving the Emergency Operations Plan;
- Directing the Chief Safety Officer's administration of the Internal Safety and Security Audit Program;
- Submitting a formal letter of certification for the annual internal safety and security audit (ISSA) report to CPUC, indicating that the District is in compliance with its PTASP; and
- Identifying the activities that District will take to achieve compliance if findings from its internal safety and security audits indicate that the District is not in compliance with its PTASP.

In accordance with 49 CFR Parts 673 and 674 requirements, the General Manager is the District's Accountable Executive. Though he/she delegates specific responsibility, the ultimate accountability for the safety performance of BART, eBART, and OAC rests with the Accountable Executive. Therefore, the General Manager/Accountable Executive ensures action is taken, as necessary, to address any substandard performance of the District Safety Management System (SMS) as outlined in the PTASP.

2.3.2 Board of Directors

The District is governed by nine elected representatives who make up the District's Board of Directors. The board members are elected to four-year terms of office by a vote within the nine established BART districts of the Bay Area. They are charged with establishing District policy; hiring the General Manager, Controller/Treasurer, General Counsel, District Secretary, and Independent Police Auditor; and, authorizing the expenditure of funds. The Board of Directors will approve this PTASP annually.

2.3.3 Chief Safety Officer

The Chief Safety Officer (CSO) has the authority and responsibility for day-to-day SMS implementation and operation for all three District rail transit modalities and does not serve in any other operational or maintenance capacities. The CSO must be adequately trained in accordance with Federal and State requirements for safety officers/officials. The CSO reports directly to the General Manager/Accountable Executive. The CSO's responsibilities include, though are not limited to, the following:

- Revising and approving the PTASP
- Administering the internal safety and security audit program for implementation of all four SMS components
- Ensuring BART complies with all CPUC State Safety Oversight (SSO) and FTA safety requirements
- Administering and communicating District safety policy

- Developing, approving, controlling, and distributing the District OR&P Manual and Operating Bulletins
- Reviewing and approving the emergency preparedness plan materials, including the System Security Plan and the Emergency Operations Plan
- Halting any conditions or practices deemed unsafe by System Safety
- Providing the General Manager with the District's safety goals and objectives and keeping him/her informed of their levels of attainment and of any extraordinary safety matters which may have significant District impact
- Placing safety issues on the agenda for the weekly Operations Staff meeting for discussion and action
- Overseeing the review of operational reports and data for conditions that could result in serious injuries or significant property damage, then reporting all *unacceptable* hazards to CPUC staff within 2 hours of making that determination
- Completing and submitting the Safety and Security Certification Verification Report (SSCVR) for all major projects to the CPUC at least 21 calendar days prior to the start of service
- Receiving notification from the Operations Control Center of accidents that could meet the thresholds listed in PTASP Section 7.4

2.3.4 SMS Manager

The SMS Manager is required to focuses on the ongoing development of a mature safety management system. As BART transitions from the system safety approach to the more proactive, formalized, and coordinated SMS approach, the SMS Manager is charged with transitioning existing processes so that they are more effective in carrying out the SMS framework that the District has established. The SMS Manager works with staff at all levels of the organization, including personnel from eBART and OAC, in the establishment of advanced safety management systems that leverage existing practices and introduce new means of managing risk, assuring safety, and communicating safety information District-wide.

2.3.5 Assistant General Manager, Operations

The Assistant General Manager, Operations, provides strategic leadership and direction in the execution of goals related to the Office of Operations. He or she reports directly to the General Manager. Responsibilities include, but are not limited to, the following:

- Assuming full management responsibility for system operations and maintenance, including employee and public safety
- Revisiting and reviewing this PTASP
- Selecting, training, and evaluating personnel as well as working with employees to correct deficiencies, and implement discipline or termination procedures
- Monitoring developments and legislation related to areas of responsibility and evaluating the impact on District operations
- Maintaining communication with other government agencies to coordinate regional issues and to serve as a liaison to external agencies
- Serve in the absence of the General Manager

2.3.6 Assistant General Manager, Design and Construction

The Assistant General Manager, Design and Construction, provides leadership and direction related to the activities and operations associated with the safety of system-wide construction and engineering projects. He or she reports directly to the General Manager. Responsibilities include, but are not limited to, the following:

- Training and evaluating personnel as well as working with employees to correct deficiencies, and implement discipline or termination procedures
- Establishing appropriate service and staffing levels; monitoring and evaluating the efficiency, effectiveness, and safety of delivery methods and procedures
- Assessing and monitoring workloads, administrative systems, and support systems to identify opportunities for improvement
- Overseeing the design, development, testing, and procurement of capital projects
- Responding to and resolving difficult and sensitive citizen inquiries and complaints

2.3.7 Chief Transportation Officer

The Chief Transportation Officer manages and oversees, through subordinate managers and supervisors, all operations and activities related to movement and control of railed vehicles throughout the system, the operation of stations, bus service from outside agencies, and operational support activities. He or she reports to the AGM, Operations. Safety-related responsibilities include, but are not limited to, the following:

- Planning, directing, and managing all operations and activities related to the safe movement and control of rail vehicles, the operation of stations, bus service from outside agencies, and operational support services
- Recommending and administering policies and procedures for all department services
- Establishing appropriate service and staffing levels; monitoring and evaluating the efficiency, effectiveness, and safety of delivery methods and procedures
- Monitoring developments and legislation related to areas of responsibility and evaluates the impact on District operations

2.3.8 Chief Mechanical Officer

The Chief Mechanical Officer manages, through subordinate managers and supervisors, all activities and operations of the Rolling Stock and Shops Department including comprehensive rail vehicle fleet and component maintenance, vehicle engineering, administration quality assurance, and new vehicle procurement including the maintenance control, quality assurance, and warranty administration of vehicles. He or she reports to the AGM, Operations. Safety-related responsibilities include, but are not limited to, the following:

- Planning, directing, managing, and overseeing all operations and activities of the Rolling Stock and Shops Department related to the maintenance control, quality assurance, safety, and warranty administration of vehicles
- Establishing appropriate service and staffing levels; monitoring and evaluating the efficiency, effectiveness, and safety of delivery methods and procedures
- Assessing and monitoring workloads, administrative systems, and support systems to identify opportunities for improvement

- Overseeing vehicle maintenance and directing, monitoring, and participating in the preparation of reports on vehicle maintenance and reviewing of findings
- Training and evaluating personnel as well as working with employees to correct deficiencies, and implement discipline or termination procedures

2.3.9 Chief Maintenance and Engineering Officer

The Chief Maintenance and Engineering Officer plans, directs, manages, and oversees the activities and operations of the Maintenance and Engineering Department project and programs. He or she reports to the AGM, Operations. Safety responsibilities include, but are not limited to, the following:

- Assuming full management responsibility for all departmental maintenance and engineering services and activities including research and development, architectural and engineering, track and structures, non-revenue vehicles, power and mechanical, and system maintenance, design, and construction projects and programs
- Establishing appropriate service and staffing levels; monitoring and evaluating the efficiency, effectiveness, and safety of delivery methods and procedures
- Providing administrative direction for the maintenance, development, design, modification and construction of facilities, as well as the acquisition and modification of equipment
- Reviewing and evaluating work methods and procedures
- Meeting with staff to identify and resolve problems
- Assessing and monitoring workloads, administrative systems, and support systems to identify opportunities for improvement
- Planning, organizing, assigning, administering, directing, reviewing, and evaluating departmental programs and activities related to the improvement of facilities and equipment
- Monitoring developments and legislation related to areas of responsibility and evaluates the impact on District operations
- Training and evaluating personnel as well as working with employees to correct deficiencies, and implement discipline or termination procedures

2.3.10 eBART and OAC Safety

In addition to the General Manager, Board of Directors, and Chief Safety Officer, the positions listed below represent the remainder of the District's agency leadership.

Chief Operating Officer of eBART

The eBART Chief Operating Officer's safety-related responsibilities include, but are not limited to, the following:

- Directly overseeing the daily operations of eBART
- Reporting to the BART AGM of Operations who in-turn reports directly to the BART General Manager
- Receiving support from the eBART COO is the eBART Safety and Training Manager who is dedicated to eBART and the OAC, but reports directly to the CSO
- Identifying the activities that eBART will take to achieve compliance if findings from an internal safety and security audit are reported
- Implementing corrective actions when identified hazards are submitted
- Receiving notification of all eBART accidents and incidents

- Approving the internal audit reports and Annual Internal Safety and Security Audit Report with a signed formal certification letter indicating eBART's compliance with its PTASP and SSP
- Reviewing, revising, controlling, and distributing the eCOR, general orders
- Approving changes to supplementary departmental bulletins and manuals made by the manager of the issuing department

eBART & OAC Safety and Training Manager

A list of the eBART & OAC Safety and Training Manager's responsibilities can be found in Section 2.4.2 of the PTASP.

OAC Line Manager

A list of the OAC Line Manager's responsibilities can be found in Section 2.4.3.

2.3.11 BART Chief of Police

The BART Police Department Chief plays a critical role in the day-to-day safety and security of patrons and passengers. The ultimate goal of the BART Police Department (BPD) and its Chief of Police is to ensure riders feel safe on District property by preventing and responding to crime. BPD responsibilities can be found in under *Safety Responsibilities of Other Departments* in Section 2.4.1. The Chief's responsibilities include providing recommendations for revision to the District Emergency Operations Plan, participating in emergency preparedness drills and exercises, and presiding over criminal safety events occurring on BART property.

2.4 Departmental Safety Responsibility

Key operations and maintenance staff in each rail mode implement the agency's SMS, overseen by management and the System Safety Department. BART, eBART, and OAC each have different internal system safety programs and lines of communication but all interface with the BART CSO, who is ultimately responsible for safety of all modes under the General Manager. BART's safety program is overseen and implemented by the full BART System Safety Department staff. eBART' s and OAC's safety programs are overseen by the eBART and OAC Safety and Training Manager and communicated to the BART CSO via established means and methods of coordination and communication. Details of each mode's safety program are outlined below.

2.4.1 BART

Lines of Authority for Safety

The System Safety Department is the focal point of all BART safety-related activities. Where safety matters involve two or more departments, the System Safety Department coordinates the efforts. This coordination may include review or preparation of rules and procedures, participation in committee discussions, auditing of the department Safety Programs and review of safety training curriculum. This methodology ensures free information flow and resolves conflict in safety-related documents prepared by more than one department.

System Safety staff has the authority to work with other BART departments and executive leadership to receive information, identify safety concerns, conduct internal reviews and inspections, develop recommendations and corrective action plans to address safety concerns, track and verify the implementation of recommendations and corrective action plans, and report findings to executive management.

The System Safety Department is organized as a matrix management structure. Projects are assigned to individual Safety Engineers or Safety Specialists who work on the project with other members of the department, other BART employees, or consultants to ensure that the project's safety-related issues are addressed by individuals with adequate technical skills. To facilitate a matrix management- based organization; employees are selected with a wide range of primary professional skills ranging from engineering, rail operations, environmental protection, and industrial safety and hygiene. With the abilities possessed in their primary areas of specialization and secondary skills developed in cross training with the other members of the staff, they are expected to successfully perform their day-to-day tasks**.**

The Chief Safety Officer and System Safety division managers meet on a biweekly basis. The purpose of the biweekly meeting is to discuss all critical and ongoing safety issues, as well as compliance with the safety management system requirements outlined in the PTASP and supporting documentation. Each Manager provides updates on his/her areas of responsibility, including status of inspections, investigations, and corrective actions. BART is further structuring this meeting to incorporate ongoing safety data analysis and performance measurement. The System Safety Department uses this meeting as a focal point for its efforts and to develop consistent messages for its participation in departmental meetings District-wide.

Figure 1.4: System Safety Department Organization Chart



The System Safety Department is composed of five divisions: 1) Rail Operations Safety Division, 2) Engineering Safety Division, 3) Employee/Patron Safety Division, 4) Environmental Compliance Division, 5) eBART/OAC Safety & Training Division, and 6) SMS Division. In 2019, BART established the Fire Life Safety Department, whose primary function is to establish a comprehensive and coordinated program to oversee a wide range of fire life safety programs described on the following pages. Currently, the Fire Life Safety Department is led by a Deputy Director who works in close coordination with the System Safety Department as the Department is developed. Like the System Safety Department, the Fire Life Safety Department includes a direct line of reporting to the General Manager.

As BART undertakes efforts to implement its SMS, each System Safety division will update and enhance its work activities and responsibilities to align with the four elements of SMS, as Safety Management Policy, Risk Management, Assurance, and Promotion are all identified as components of the effective implementation of their divisional duties.

Primary responsibilities of the Rail Operations Safety Division include the following:

- Implement the District's System Safety Program as it relates to Operations Safety
- Oversee the Operating Rules and Procedures manual and Roadway Worker Protection rulebook development and revision to ensure safety is appropriately addressed
- Review and investigate operational accidents, safety incidents, and safety complaints for cause and corrective action
- Manage the implementation and maintenance of the PTASP
- Report accident data to CPUC and FTA as required by regulations
- Conduct Internal Safety Audits of Rail Operations Departments and facilitate the CPUC Triennial Audit as required by regulations
- Maintain the District's ability to respond to emergency/disaster conditions
- Administer the Operations Safety Compliance Program
- Support activities coordinated by the Fire Life Safety Department with fire departments
- Support Roadway Worker Protection (RWP) Program compliance

Primary responsibilities of the Engineering Safety Division include the following:

- Oversee the safety of engineering construction projects while keeping the engineering safety-related criteria, plans, and fire/life safety code requirements current
- Maintain the Department's PTASP
- Review BART Engineering Change Orders
- Review District Work Permit applications for safety impact
- Facilitate BART's Emergency Exiting Study Program and conduct station exiting calculations
- Provide liaison between consultants, District engineers, and the Fire Life Safety Departments
- Review planned projects and identify those that require safety certification
- Review Contractor Site-Specific Work Plans and District Interim Operating Plans from a safety perspective
- Assist with the development of the Safety and Security Certification Plan
- Facilitate CPUC oversight of the safety certification program by reviewing the safety certification checklists, conducting safety certification audits, witnessing safety testing, conducting field inspections, and reviewing safety records
- Facilitate CPUC staff oversight of BART design and construction projects

- As a part of continuous improvement efforts, the Engineering Safety Division annually creates and provides a Top 10 list of safety concerning assets across the District to Maintenance and Engineering (M&E). These assets are documented in the M&E Risk Register along with other assets and reviewed by the Engineering and Maintenance departments. The final Risk Register results are provided to System Safety for their use and published on the M&E Kiosk page as part of an annual update process. Engineering Safety will provide assistance to M&E as requested on this effort

Primary responsibilities of the Employee/Patron Safety Division include the following:

- Chair the Joint Union/Management Health and Safety Committee and facilitate resolution of issues Support BART departments in maintaining a safe and healthful workplace
- Track Cal/OSHA citations
- Administer Facilities Emergency Evacuation Program
- Review and investigate employee/patron accidents, illnesses, safety claims and complaints for cause and corrective action
- Conduct Safety Notice reviews and investigations
- Inspect station and shop waste disposal areas
- Maintain and implement the District's Injury and Illness Prevention Program
- Administer Industrial Hygiene Program
- Administer Ergonomics Program
- Administer Hearing Protection Program
- Perform facility and equipment inspections to ensure compliance with the California Department of Industrial relations Division of Occupational Safety and Healthy (Cal/OSHA) safety regulations
- Complete Cal/OSHA Injury and Illness 300 Log
- Provide statistical analysis of patron/employee injuries/accidents, and operational incidents
- Support implementation of the Hazardous Materials Management Program, including the handling, storage, inspections, and reporting of hazardous materials, Hazardous Material Business Plans (HMBPs), SDS sheets, Hazard Communication and training
- Administer the District's Bloodborne Pathogens Control Plan

Primary responsibilities of the Environmental Compliance Division include the following:

- Support compliance with District Facility Environmental Permits and Plans
- Coordinate contracted environmental services agreements, i.e. General Environmental Services Contracts
- Administer the Hazardous Materials & Waste Management Program
- Administer the Spill Prevention Control & Countermeasure Plan
- Administer the Underground Storage Tank Compliance Program
- Support engineering and construction projects with applicable environmental compliance requirements
- Review proposed environmental regulations for potential impacts to BART operations
- Represent organization as subject matter experts for environmental regulators
- Investigate environmental incidents and develop action plans
- Educate employees on environmental programs and policies

Primary responsibilities of eBART/OAC Safety & Training Division include the following:

- Administer eBART Safety Programs
- Administer eBART Training Programs
- Provide OAC safety and training oversight

System Safety employs various methodologies in performing the safety tasks in order to achieve a proactive approach to safety. These include but are not limited to the following: data collection and analysis, hazard management and resolution, periodic inspections/compliance checks and internal safety and security audits, as described throughout the four SMS components in this PTASP.

Safety Responsibilities of Other Departments

The safety responsibilities of the other BART departments are embedded in their core duties for assuring a reliable and efficient system. Inspection and maintenance programs are grounded in the assurance of safe operations. Outlined below is a brief description of the safety responsibilities and tasks of the following key departments.

The Transportation Department is charged with transporting the District's customers safely, efficiently, and reliably while providing an aesthetically pleasing station environment staffed by service-oriented personnel. The Transportation Department is responsible for ensuring that all train and station operations, control center operations, and supervision thereof are staffed and trained at appropriate levels to ensure the safe and reliable delivery of service. The Transportation Department is responsible for conducting rules compliance checks and tracking and evaluating operating performance for issues that affect the safety of the system.

The Rolling Stock and Shops Department is responsible for the following:

- Perform preventive maintenance to ensure the safety and reliability of the fleet and systems.
- Support daily rail operations.
- Respond to unscheduled maintenance demands.
- Maintain standards for heavy and post-accident repair work.
- Inspect scheduled and unscheduled maintenance work and incoming new and refurbished components to ensure integrity of maintenance programs and vehicle operations.
- Clean revenue vehicles (interior and exterior).
- Clean shops/yards, equipment, office buildings and towers.

The Maintenance and Engineering Department is responsible for the following:

- Developing and administering maintenance programs for BART mechanical equipment and systems to ensure their safety and reliability;
- Maintaining all electrical and mechanical equipment throughout the system;
- Maintaining the District's automotive and heavy rail maintenance equipment fleet;
- Maintaining the District's train control equipment;
- Maintaining the District's track and structures;
- Maintaining and inspect all District fire protection and suppression equipment;
- Maintaining automatic fare collection (AFC) equipment;
- Maintaining communications equipment;

- Scheduling and performing preventive maintenance for AFC, communications equipment, destination signs, and maintenance vehicle detection devices (MVDD);
- Providing engineering (civil/structural, electrical, mechanical, construction management, train control, communications, fare collection engineering and computer systems) design and support for Basic, Expansion, Access, and Extensions Projects;
- Researching and developing new technologies to improve operational efficiency;
- Providing cost engineering, financial planning, scheduling, and program control for Engineering Departments; and
- Providing design, drafting, graphics, technical drawings and configuration control for all technical documents in the District.

The BART Police Department is responsible for the following:

- Responding to emergency and non-emergency calls for service;
- Providing uniformed officer patrols and K-9 units;
- Conducting criminal investigations, target criminal activity;
- Providing parking control;
- Providing security for cash handling and collection crews;
- Regulating access to critical infrastructure and sensitive security information and facilities;
- Interfacing with the FBI, TSA, DHS, and DOJ on all security-related matters;
- Conducting threat and vulnerability assessments; and
- Implementing threat mitigation strategies.

The Fire Life Safety Department is responsible for the following:

- Coordinating and conducting trainings, familiarization programs, tabletop exercises, and drills with Fire Departments;
- Coordinating fire-related safety drills with over 20 different fire departments and authorities including San Francisco Fire Department and Oakland Fire Department, BART Police, Alameda County Sheriff's Department, TSA, the Port of Oakland, and other emergency first responder agencies throughout the District;
- Ensuring BART and eBART compliance with fire/life safety codes;
- Overseeing and chairing the Fire Liaison Committee (FLC) and the Fire Life Safety Committee (FLSC);
- Providing subject matter expertise for fire event investigations;
- Conducting annual fire/life safety inspections of all BART and eBART departments; and
- Ensuring that fire/life safety activities are appropriately administered in accordance with BART contractual and regulatory requirements for the OAC

Interfaces within District Organization Structure

The System Safety Department interfaces and communicates with most of the District's departments. Most of the System Safety Department primary activity is conducted with the operations and maintenance departments.

Appendix A includes BART organization charts that demonstrate the interfaces within the District.

Listed below are the primary BART departments which interface with System Safety Department staff:

- Office of General Manager
- BART Police
- External Affairs
- Fire Life Safety
- Maintenance and Engineering
- Operations Planning
- Design & Construction
- Planning & Development
- Procurement
- Rolling Stock and Shops
- Transportation
- Human Resources
- Labor Relations

2.4.2 eBART

Lines of Authority for Safety

An effective system safety program benefits everyone and is a primary goal at eBART. As the accountable executive, the BART General Manager is responsible for providing employees with a safe and healthy work environment and is ultimately responsible for the District's overall safety program. The eBART COO, Superintendents, and Assistant Superintendents are responsible for the safety of their departments, personnel, facilities, equipment, operations, and services provided. This responsibility involves implementing and enforcing all safety rules, and evaluating and correcting hazards. Additionally, they are responsible for coordinating safety-related issues, incidents, and accident information with the eBART Safety and Training Manager. eBART Supervisors are responsible for the safety of personnel, facilities, equipment, operations, and services under their supervision. Their actions also include routinely discussing with employees, prior to the start of work each day, workplace or operational changes which may affect safety and taking appropriate action in instances where unsafe acts or conditions are reported, observed or otherwise come to their attention. Employees are responsible for on-the-job safety awareness, which means routinely following established rules, procedures, policies, and safe work practices. They are responsible for knowing and following all safety and security rules and regulations affecting their position, and ensuring the safety of themselves and others in their work area.

BART System Safety staff members have the authority to work with all BART departments, business units, and executive leadership to receive information, identify safety concerns, conduct internal reviews and inspections, develop recommendations and corrective action plans to address safety concerns, track and verify the implementation of recommendations and corrective action plans, and to report findings to executive management.

The eBART Safety and Training Manager is the focal point of all eBART safety-related activities. Where safety matters involve two or more departments, the eBART Safety and Training Manager will coordinate the efforts. This coordination may include review or preparation of rules and procedures, and participation in committee discussions. This methodology ensures free information flow and resolves conflict in safety-related documents prepared by more than one department.

The eBART Safety and Training Manager works directly with eBART management and supervision, but will report to the BART Chief Safety Officer. The eBART Safety and Training Manager's primary responsibility is working with eBART management and supervision to support safety at eBART. All safety-related activities of the eBART Safety and Training Manager are subject to oversight of the BART System Safety Department and the Chief Safety Officer. A summary of the eBART Safety and Training Manager responsibilities is listed below:

- Maintain safety-related plans, rule books, procedures, and manuals;
- Coordinate reviews and investigation of operational accidents, safety incidents, and safety complaints;
- Report accident data and distribute to CPUC as required;
- Conduct internal safety audits, inspections, readiness drills, and support CPUC triennial audit;
- Implement and maintain the eBART IIPP (Cal-OSHA BCCR 3203);
- Ensure compliance with environmental regulations;
- Participate in internal eBART safety audits of compliance;
- Maintain an awareness of shop and mainline activities and assist management, supervision, and employees in enhancing safe work practices;
- Conduct annual reviews of the policies and procedures to ensure they remain current with applicable regulations and standards;
- Conduct initial safety briefing to new eBART employees;
- Conduct safety training for all eBART employees, initially and periodically, as prescribed in the Employee Certification Plan (ECP);
- File required reports relating to injuries, compliance issues, etc., as required;
- Maintain Safety Data Sheet (SDS) records;
- Implement and maintain a Lock-Out/Tag-Out program;
- Manage eBART Roadway Worker Protection (RWP) program;
- Chair the Safety and Security Review Committee (SSRC); and
- Chair the eBART Fire Life Safety Committee (FLSC).

As the Chair of the SSRC, the eBART Safety and Training Manager will:

- Participate in regular meetings to discuss eBART system safety;
- Ensure implementation of readiness drills, safety audits, and corrective action plans;
- Review and provide feedback to updates to the PTASP;
- Review and provide feedback to eBART annual safety audit reports;
- Review incident reports and other safety records;
- Participate in the incident investigation review process;
- Coordinate policy and procedure updates with various emergency response agencies relative to the eBART system;
- Coordinate with and report applicable safety matters to CPUC; and
- Resolve safety-related matters that are brought before the SSRC.

2.4.3 OAC

Lines of Authority for Safety

System Safety staff members have the authority to work with all OAC personnel to receive information, identify safety concerns, conduct internal reviews and inspections, develop recommendations and corrective action plans to address safety concerns, track and verify the implementation of recommendations and corrective action plans, and to report findings to executive management.

The OAC Safety and Training Manager is the focal point of all OAC safety-related activities. Where safety matters involve two or more departments, the OAC Safety and Training Manager coordinates the efforts. This coordination may include review or preparation of rules and procedures, and participation in committee discussions. This methodology ensures free information flow and resolves conflict in safety-related documents prepared by more than one department.

The OAC Safety and Training Manager works directly with BART oversight management as well as OAC management and supervision, but will report to the BART Chief Safety Officer. The OAC Safety and Training Manager's primary responsibility is working with OAC management and supervision to support safety at OAC. All safety-related activities of the OAC Safety and Training Manager are subject to oversight of the BART System Safety Department and the Chief Safety Officer. A summary of the OAC Safety and Training Manager responsibilities is listed below:

- Participates in regular meetings to discuss OAC system safety;
- Ensures implementation of readiness drills, safety audits, and corrective action plans;
- Reviews and provides feedback to updates to OAC segments of the PTASP;
- Reviews and provides feedback to the OAC annual safety audit reports;
- Reviews the Operator's incident reports and other safety records;
- Participates in the incident investigation review process;
- Coordinates policy and procedure updates with various emergency response agencies relative to the OAC system; and
- Coordinates with CPUC and reports to federal and state agencies.

OAC has established a Safety and Security Review Committee (SSRC). The SSRC includes the District's personnel, the Operator's personnel, BART Chief Safety Officer and/or his designees, BART Security Manager and/or his designees, other representatives as determined by the District, and other external agencies (e.g., CPUC). The SSRC meets monthly to discuss system safety.

The SSRC focuses its activities on the BART OAC safety and security. As such, the SSRC:

- Participates in regular meetings to discuss OAC system safety;
- Ensures implementation of readiness drills, safety audits, and corrective action plans;
- Reviews and provides feedback to updates to the PTASP;
- Reviews and provides feedback to OAC annual safety audit reports;
- Reviews the Operator's incident reports and other safety records;
- Participates in incident investigation review process; and
- Coordinates policy and procedure updates with various emergency response agencies relative to the OAC system.

Operator's Safety Coordinator

The Operations and Maintenance Manager or his/her designee assumes the role of the Operator's Safety Coordinator and directly reports to the OAC Line Manager. A summary of the responsibilities of the Operator's Safety Coordinator is listed below:

- Maintains safety-related plans, rulebooks, procedures, and manuals;
- Coordinates reviews and investigation of operational accidents, safety incidents and safety complaints;
- Reports accident data to the District's representatives for distribution to CPUC and other federal and state agencies, as required;
- Conducts or participates in internal safety audits, inspections, and readiness drills;
- Maintains and implement the Operator's Injury and Illness Prevention Program;
- Support development of safety procedures for any internal or external projects affecting the Oakland Airport Connector System and oversee the Operator's implementation of the safety procedures;
- Ensures compliance with environmental regulations;
- Conducts safety meetings;
- Participates in internal audits of compliance to the safety program;
- Inspects adequacy of safety equipment, requesting replacement or servicing by others, as appropriate;
- Performs duties associated with the position of Incident Commander in responding to emergencies involving fire, explosion or release of hazardous wastes that could threaten human health or the environment;
- Maintains an awareness of shop activities and assists shop supervision and employees in conducting safe work practices;
- Maintains the Safety Policies included in the O&M Manual and conducts annual reviews of the policies and procedures to ensure they remain current with applicable industry standards;
- Conducts initial briefing of new employees and office personnel in the Safety Program, including orientation of re-hires on any changes made since previous employment;
- Conducts training sessions for all employees, initially and periodically, as may be required by the provisions of the General Safety Requirements in the O&M Manual, seeking outside support, as required;
- Ensures that employees receive required physical screening by authorized medical facilities/personnel for use of special safety equipment based on job assignment, as necessary or required;
- Determines specific needs for safety equipment needed by employees based on job assignment, in conjunction with site supervision, and initiating appropriate actions to "obtain, fit, and train", as appropriate;
- Files required reports relating to injuries, compliance issues, etc., to the insurance company and to federal and state agencies;
- Maintains records relating to injuries, safety training, etc., as required by the General Safety Requirements in the O&M Manual;
- Maintains Safety Data Sheet (SDS) records; and
- Implements and maintains a Lock-Out/Tag-Out program.

OAC Line Manager

The District's OAC Line Manager is directed and empowered to oversee the development, implementation, and administration of the PTASP and interfaces directly with the BART System Safety Department on relevant OAC safety matters.

The OAC Line Manager ensures the compliance with the designer's preventative activities and responsibilities of the Operator in an effort to identify, control, and resolve hazards during design, development, and operational phases of transit service. In addition, where it is determined that unsafe practices exist, the Line Manager has the authority to order such conditions corrected or practices halted. This includes the interruption of revenue services, if conditions warrant. In addition, the Line manager monitors compliance with the PTASP, including CPUC and Transportation Security Administration (TSA) requirements, audit compliance with the Operator's General Requirements, and coordinates with the Fire Life Safety Department to conduct safety drills with the Oakland Fire Department, BART Police, Alameda County Sheriff's Department, TSA, and the Port of Oakland.

2.4.4 Organizational Charts

Organizational charts can be found in Appendix A.

2.5 Interagency Services

The District interfaces with approximately 27 other transit modes and agencies that operate throughout Northern California, including other rail and bus transit, commuter and intercity rail, buses, and ferries. The highest volume and most frequently interfacing agencies include San Francisco MUNI bus and metro, Caltrain, AC Transit, Valley Transportation Authority (VTA), and SamTrans.

3.0 Plan Development, Review, and Updates

3.1 Plan Development

On July 19, 2018, the Federal Transit Administration (FTA) published 49 Code of Federal Regulations (CFR) Part 673, superseding 49 CFR Part 659, requiring certain operators of public transportation systems that receive funding under 49 United States Code (USC) Chapter 53 to develop a Public Transportation Agency Safety Plan (PTASP). This rule, effective July 19, 2019, requires that BART have an approved PTASP in place by July 19, 2020. This plan has been developed as a comprehensive, agency-wide, safety plan built on a Safety Management System (SMS) to meet FTA requirements under 49 CFR Part 673. These requirements are promulgated by the CPUC SSOA. The PTASP is developed and maintained by the BART System Safety Department.

3.2 Annual Plan Review

As required by 49 CFR Part 673 and CPUC General Order (G.O.)164-E, this plan will be reviewed annually in order to determine if updates are required. BART's General Manager, the agency's Accountable Executive, and the Chief Safety Officer will hold the eBART Safety and Training Program Manager, the OAC Line Manager, and each department manager accountable for compliance with agency processes established to fulfill this requirement. The System Safety Department is responsible for ensuring that each department manager understands the plan content and the safety of their domain, and will propagate this responsibility on to each level of the supervisory chain and down to the rank-and-file employee. The System Safety Department is responsible for checking with respective department managers to ensure the PTASP content is accurate and complete.

The System Safety Department will conduct an annual review of this document or when significant District or regulatory changes occur, to determine if it should be updated. The plan will also be distributed to departmental managers for review and input on updates. Designated staff within the appropriate operations departments such as Transportation, Maintenance and Engineering, Rolling Stock and Shops, and eBART will review the PTASP and respond with comments. Designated staff within the System Safety Department will have the responsibility for incorporating comments received from all BART departments, and issuing changes and revisions to the Plan. This individual will also coordinate with the CPUC staff and keep them abreast of changes and updates.

3.2.1 Plan Review and Approval Timeline

Milestone	Department or Individual Responsibility	Due Date
Draft copy submitted to departmental managers (including eBART and OAC) for approval	Chief Safety Officer, eBART Safety and Training Manager, OAC Line Manager	December 31
Suggestions for revision provided to System Safety Department	Departmental managers	January 15
Draft Final copy submitted to CPUC for review and conditional approval (pending signatures)	Chief Safety Officer	February 15
Final copy submitted to BART executive management and General Manager for signature	General Manager	March 15
Final copy submitted to Board of Directors for review and approval	Board of Directors	March 15
Approved copy submitted to CPUC	CPUC	April 15

3.3 PTASP Review and Approval by Executive Management and the State Oversight Agency

Revisions will be submitted to the CPUC for plan review and approval. After submittal of the plan, the CPUC staff will respond within 30 days, either outlining their areas of concern with comments or approving the plan as written. The draft will be presented to CPUC for written conditional approval, as the management will sign the plan and the Board will approve it only after all content is finalized. BART will work to incorporate any revisions required for approval. Following conditional approval by the CPUC, the PTASP Policy Statement will then be signed by BART's Accountable Executive and formally approved by resolution at a meeting of the Board of Directors. Upon Board approval, BART will submit the final PTASP to CPUC in order to receive the formal correspondence letter of approval from the CPUC. BART will certify this PTASP initially and annually thereafter through the FTA's Certification and Assurance process.

3.4 Plan Distribution and Control

Once endorsed, the System Safety Department is responsible for disseminating the PTASP throughout the agency, including transmitting an electronic version to the Document Division so that it may be stored as the safety plan record. The System Safety Department will distribute the Safety Policy using various methods, including, but not limited to email and/or sign-for documentation. The Safety Policy shall be posted at BART facilities and offices, incorporated into new hire and refresher training, and posted on bart.gov.

3.5 BART's Transition to SMS

In accordance with FTA and CPUC requirements, BART is transitioning from its existing system safety approach to that of the Safety Management System. This PTASP serves as the foundation for the transition, and BART will monitor its effectiveness and make changes to plans, policies, procedures, and practices to best support the needs of the new approach. BART has created an SMS Manager position, which will be filled in 2020 to further lead its SMS efforts.

3.6 Conformance with FTA Guidelines

This PTASP addresses all requirements and standards as set forth in the FTA's Public Transportation Safety Program and the National Public Transportation Safety Plan. The PTASP will be revised when FTA establishes standards through the public notice and comment process, as well as through the annual plan review described in section 3.2.

4.0 Safety Performance Measures and Targets

The establishment of safety performance measures and targets (SPMs & SPTs) is a requirement of 49 CFR Part 673. The safety performance targets promulgated by this plan include measures specified by the National Public Transportation Safety Plan (NPTSP) in accordance with 49 CFR Part 670. The agency's safety performance targets seek to ensure the mitigation of identified safety risk to a point that is as low as reasonably practicable. By identifying specific, measurable, attainable, relevant, and time-bound targets, the District establishes processes for the regular evaluation of safety data collected across the agency.

The District has set forth SPTs in furtherance of the agency's Safety Assurance processes; a critical aspect of the District's SMS, these processes continuously scrutinize and record safety performance. Detailed in Section 7 of this plan, Safety Assurance encompasses safety performance monitoring and measurement, the management of change, and the continuous improvement of safety performance; collectively, these processes ensure that safety risk mitigations are implemented, appropriate, and effectively reduce safety risk. By identifying and clearly defining SPTs, the District informs safety performance monitoring and measurement activities and ensures the consistency of safety performance data, establishing criterion against which future safety performance may be measured. BART will use its SPT data to conduct more in-depth analysis of the safety data to determine the factors driving the values and the actions necessary to ensure that SPTs are met and adverse events (e.g. accidents, incidents, and occurrences) are reduced on an ongoing basis.

SPTs reflect the structure of agency operations. BART and eBART operations, which are wholly owned and operated by the District, generate volumes of easily accessible data that allows for the development of extensive safety performance targets. OAC service, operated by Doppelmayr Cable Car (DCC), requires coordination between the Operator and System Safety to track and develop safety performance targets. Safety Assurance processes for all three modes described in Section 7, including the monitoring and measurement and continuous improvement of safety performance, are managed by the Safety Department and reported to the Board through the Quality Performance Review.

SPTs will be reviewed annually and revised if needed during the PTASP update. The targets will be communicated and coordinated with the designated person of contact representing the Metropolitan Transportation Commission (MTC, BART's Metropolitan Planning Organization) in order to inform the planning agency's funding prioritization. BART coordinates safety performance targets with the following contact person at MTC:

- Shruti Hari
  Principal, Safety & Asset Management
  shari@bayareametro.gov

Section 4.1 displays the District's SPTs—fatalities, injuries, safety events, and system reliability— which are derived from the FTA-recommended safety categories. These four targets are data points that public transportation providers must annually submit to the National Transit Database (NTD). Per NTD reporting thresholds, a *fatality* is any death or suicide in or on transit property confirmed within 30 days of a reported event, excluding those attributable to illness or natural causes. An *injury* is any damage or harm to persons as a result of an event that requires immediate medical attention away from the scene. A *safety event* is any collision, derailment, fire, hazardous material spill, act of nature (Act of God),

evacuation, or OSONOC occurring on transit right-of-way, in a transit revenue facility, in a transit maintenance facility, or involving a transit revenue vehicle and meeting established NTD thresholds. A *system reliability event* is a major mechanical system failure of some element of the revenue vehicle that prevents the vehicle from completing a scheduled revenue trip or from starting the next scheduled revenue trip because actual movement is limited or because of safety concerns.

The total number of events per year represent target SPTs established using five-year trend data from 2015-2019**.** The District has chosen to adopt the five-year average total numbers and rates as its performance targets, reflecting a goal to maintain the current level of safety performance while addressing Part 673 requirements. In the future, as the District SMS matures, the District, or one of its modes, intends to develop additional advanced SPTs, i.e., targets representing improvement over the current safety performance level.

4.1 Safety Performance Targets

Safety Performance Measure	Mode	Safety Performance Target Total # of Events per Year	Safety Performance Measure Total # of Events per Year per 1 Million VRM*	Safety Performance Target Annual Reduction Measure
Fatalities	BART	0	0	- 5%
	eBART	0	0	-
	OAC	0	0	-
Patron Injuries	BART	60	0.76936	- 5%
	eBART	2	3.0985	- 5%
	OAC	1	2.5734	- 5%
Safety Events	BART	10	0.12823	- 5%
	eBART	1	1.5492	- 5%
	OAC	0	0	-
System Reliability Failures	BART	60	0.76938	- 5%
	eBART	5	7.7461	- 5%
	OAC	1	2.5734	- 5%

* Vehicle Revenue Miles (VRM) by mode:

BART = 77,985,115 eBART = 645,485 OAC = 388,584

Key performance indicators (KPIs) and safety data are measured throughout the District by the System Safety Department as well as other departments. The System Safety Department is currently entering a range of its safety data into the Maximo database and further developing the safety database to include a dashboard with KPIs related to its audit activities and overall safety performance. Furthermore, the System Safety Department managers reviews the dashboards and output data from other departments such as Transportation and Maintenance and Engineering, independently and at departmental meetings. Under its SMS, System Safety has developed and is continuing to develop systems to review, analyze, and integrate safety data into leading and trailing performance indicators in addition to the aforementioned KPIs.

5.0 Safety Management Policy

5.1 SMS Policy

Section 1 of the PTASP includes the Safety Management Policy Statement. In furtherance of the Policy Statement, BART has established: an overall safety purpose, goals, and objectives; a comprehensive program for emergency preparedness and operations; programs for communicating the safety policy; employee safety reporting programs; and documentation and recordkeeping requirements.

5.2 Purpose, Goals, and Objectives

5.2.1 Purpose

The PTASP defines the District's technical and managerial safety activities while conforming to the themes of a safety management system.

Multiple parties are responsible for cooperating in the development of, and safety culture promotion for, this multi-modal plan. To achieve a safety culture within an organization, two vital aspects must be firmly in place. First, the System Safety Department must identify and communicate the various safety regulatory requirements, safety requirements, and safety practices to pertinent departments, Districtwide. Second, each department manager must clearly understand that they are responsible for the safety of their domain, and to propagate this responsibility on to each level of the supervisory chain and down to front-line employees.

This PTASP complies with the requirements of 49 CFR Part 673 and the CPUC G.O. 164, *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*. It shows the System Safety Department's relationship with regulatory agencies and other BART departments, and it defines the responsibilities of the various District departments. Additionally, sufficient detail is presented for the monitoring and control of the program.

5.2.2 Goals

The PTASP goals are as follows:

- Provide a safe, reliable, clean, quality transit service for riders.
- Identify, eliminate, minimize, and/or control safety hazards and risks.
- Minimize or eliminate accidents/ injuries through engineered controls, safety devices, operating procedures, audits, and corrective actions.
- Ensure compliance with safety, health and environmental laws, regulations and codes.
- Maintain a high level of ability to respond to emergency/disaster conditions.
- Establish requirements, lines of authority, levels of responsibility and accountability for implementation of the PTASP within the organization.
- Create a program for the analysis of safety information and lessons learned through the District's operations and at other transit properties (which have characteristics similar to the District's modes) to support the improvement of BART system safety.
- Ensure that the District's safety programs are effectively and comprehensively promoted and communicated to employees and the public.

5.2.3 Objectives

The PTASP goals are attained by achieving the following objectives:

Safety Policy

- Communicate and apply a safety policy consistent with SMS;
- Support and/or implement emergency exercises to demonstrate the District's preparedness for emergencies and disasters; and
- Implement safety-related District management procedures and policies

Safety Risk Management

- Identify and resolve hazards through a documented process of reviews, analysis, and certification, and testing; and
- Perform hazard/risk assessment for integration of safety component into the capital investment prioritization of the Asset Management Program

Safety Assurance

- Perform internal safety audits and follow up on corrective action items;
- Perform accident investigations to preclude a recurrence;
- Inspect and maintain all assets to the requirements established in referenced plans and procedures; and
- Ensure compliance with operating rules

Safety Promotion

- Implement the Employee Safety Program and Injury and Illness Prevention Program (IIPP);
- Develop a pilot program to create Safety Champions in Operations Departments and at operating and maintenance facilities to promote safety dialogue with all levels of District employees;
- Comply with environmental regulations through a hazardous materials program;
- Promote safety through executing defined training and oversight; and
- Distribute the Rule of the Week to all District employees.

5.3 System Safety, Security, and Emergency Preparedness

5.3.1 District-Wide Security and Emergency Management Program (EMP)

Emergency preparedness is a shared responsibility for all employees. The structure of the EMP falls under the Security Division in the BART Police Department. Awareness, planning, training, drills, and exercises help contribute to a culture of safety and emergency preparedness at BART. Policy on BART Emergency Preparedness is located in BART's Emergency Operations Plan, Book 346.

Additionally, eBART emergency preparedness is addressed in the eBART Emergency Response Plan, and similarly, OAC maintains its own emergency response plan. Both eBART and OAC plans follow an approach that is generally consistent with the BART Emergency Management Program.

The goals of BART's Emergency Management Program are to:

- Provide effective life safety and emergency response and recovery measures during a catastrophic event or emergency, and reduce property loss and damage to the environment.
- Provide for the rapid resumption of transportation services.
- Provide accurate documentation and records required for cost recovery efforts.

The objectives of BART's Emergency Management Program are to

- Maintain overall coordination/support of emergency response and recovery operations, including on scene incident management as required.
- Coordinate and liaise with appropriate federal, state, regional, and local government agencies, as well as applicable segments of private sector entities and volunteer organizations.
- Establish priorities and resolve conflicting demands for support via Incident Command System (ICS) management by objectives protocols.
- Work with BART Media and OCC to prepare and disseminate emergency public information to alert, warn, and inform the public.
- Disseminate damage information and other essential data to all BART divisions, as required.
- Activate the Emergency Operations Center to support and assist incident command staff with priorities and objectives.

Using the Incident Command System framework, BART's all-hazards Emergency Operations Plan (EOP) establishes policies and procedures and assigns responsibilities to operationalize emergency management objectives and goals within BART.

The Plan includes BART's Incident Management Organization for responding to emergencies. It also describes how BART implements the Incident Command System (ICS) established by local responders and integrates the National Incident Management System (NIMS)

The objectives of the BART EOP are to create plans and processes for, respond to, and recover from a catastrophic, unplanned, and/or unusual event. Its goals are to prevent loss of life or injury, mitigate the potential danger to passengers, emergency responders and others during emergency events, have plans that incorporate emergency responders and other external agencies, and to maximize the effectiveness of BART and other agency personnel in dealing with such incidents when they occur. The plan's implementation ensures efficient, controlled and predictable responses to various types of emergencies and incidents that may occur on the BART system. The BART Emergency Preparedness Program is responsible for reviewing and maintaining the Emergency Operations Plan,

Events that are deemed terrorist acts have additional response policies that are included in the Terrorism Response Annex, which is part of the System Security Plan. These policies and plans are maintained by the Director of Security.

All revisions to the plan will be approved by the Chief Safety Officer, the Director of Security Programs, the BART Chief of Police, the AGM for Operations, and the General Manager. The Emergency Preparedness Manager is responsible for document distribution and control.

The EOP will be tested by tabletop and/or training exercises on a routine basis as described in EMP documentation. Real-world events may be used as a lessons-learned exercise potentially with an After-Action Report. Emergency procedures/drills will be performed in conjunction with appropriate emergency response agencies to ensure proper response to actual events. Internal Safety Audits (described in Section 7.1) help to verify that periodic emergency response exercises and disaster preparedness planning have been performed to ensure that BART maintains a high level of emergency preparedness. Elements shall be in accordance with the specified requirements of the BART Emergency Operations Plan.

The Emergency Operations Center (EOC) will be used to coordinate, support, manage, and provide planning, response, and recovery support to the Incident Command and/or Unified Command. After activation of the EOC, the EOC staff shall notify and coordinate internally and with local, state, regional and federal public safety entities, transportation partners, and the private sector, as required. Primary public safety partners in emergency management include the Metropolitan Transportation Commission (MTC), Water Emergency Transportation Agency, San Francisco and Oakland Airports, Alameda County Office of Emergency Services, Contra Costa County Office of Emergency Services, San Francisco City and County Department of Emergency Management, San Mateo County Office of Emergency Services, Santa Clara County Office of Emergency Services, Governor's Office of Emergency Services, Federal Emergency Management Agency, and Pacific Gas and Electric. The criteria for activation of the EOC, activation procedures, and equipment layout are addressed in the BART Emergency Operations Plan.

The Fire Life Safety Department, System Safety Department, and the Emergency Preparedness Program are responsible for coordination of emergency preparedness functions such as meetings with outside agencies, participation in training and emergency exercises sponsored by other agencies, and revision and distribution of the Emergency Operations Plan and emergency response procedures. Periodic emergency response exercises/drills and disaster preparedness planning will be developed and executed throughout the year to demonstrate sound knowledge, preparation, and readiness of emergency procedures. Periodic emergency procedures/drills will be performed in-house and with appropriate emergency response agencies to ensure proper response to actual events.

5.3.1.1 Emergency Exercises

Emergency Exercises are utilized to evaluate emergency procedures, contingency plans, and the effectiveness of coordination with outside agencies. Emergency exercises/drills provide indispensable training and familiarization opportunities for both emergency response personnel and rail transit agency staff. These are classified into two categories, Scheduled and No-Notice Drills, described as follows:

1. Scheduled Emergency Exercises: Can be developed by Fire Life Safety, System Safety, Transportation, Emergency Preparedness Program, and/or BART Police Department staff and distributed in advance to all participating departments and outside agencies. The primary purpose of this type of exercise is to provide training, to evaluate policies and procedures, and to identify any gaps in the existing plans. This includes both tabletop and live exercises.
2. No-Notice Drills: No-Notice Drills are developed and used to test the adequacy and appropriateness of response actions as required by emergency procedures. These types of drills can be conducted with or without outside agency participation.

The Fire Life Safety Department, System Safety Department, and/or the Emergency Preparedness Program is responsible for developing, initiating, and evaluating emergency exercises. Exercise evaluators may include representatives from said departments and from each participating District department and outside response agencies. They are expected to observe exercises and provide a critique in the form of an After-Action Report. The After-Action Report includes a description of the observations noted during the exercise. Fire Life Safety and/or Emergency Preparedness will evaluate After-Action Report recommendations and implement corrective actions, where practical.

5.3.1.2 Emergency Operations Plan

The Emergency Operations Plan (EOP) provides for the mobilization and direction of District and outside resources in response to emergency situations which could adversely affect employee/patron safety and/or District infrastructure and/or operations.

It is the responsibility of the Emergency Preparedness Program to maintain and revise the District's EOP. The EOP is reviewed on an annual basis by the Emergency Preparedness Program and an assessment made regarding whether or not revisions to the plan are warranted. In addition to this review, any BART department may forward recommendations for changes to the EOP to the Chief Safety Officer, Chief Transportation Officer, Communications, Manager of Emergency Preparedness, Director of Security or the BART Chief of Police, as appropriate.

Validation of the EOP and evaluations of readiness in carrying out these procedures are performed by conducting emergency exercises and After-Action reviews after emergencies. Deficiencies noted may be corrected by procedural changes, training, or equipment upgrade.

The BART Operations Rules & Procedures Manual, used in conjunction with the EOP, details the required communications methodology for BART during an emergency. eBART and OAC operating manuals, in conjunction with the Emergency Operations Plan, detail the required communications methodologies for each line.

5.3.1.3 Emergency Operations Training

Employees should be acutely aware of risks and hazards and all safety rules and procedures. BART's Emergency Operations Plan outlines training required for general disaster service workers. Specialized workers may require more advanced training to ensure proficiency in the full range of emergency situations. BART provides employee training to staff for handling of emergency situations through proper initial and refresher training to ensure proficiency in the response to full range of emergencies. Emergency operations training for OAC employees is embedded in OAC-specific training. Employees providing public service such as Station Agents and Train Operators are thoroughly trained in the handling and response to emergencies. Station Agents are required to undergo training and recertification every 3 years and Train Operators as described in Section 8 of this PTASP.

5.3.1.4 OAC-Specific Emergency Exercises and Drills

Familiarization Training to local public safety entities will be provided and coordinated by the Fire Life Safety Department and the OAC Operator. Emergency plans and procedures have been developed in coordination with the Operator, the District and local emergency response agencies to ensure readiness in response to an emergency. These procedures are located in the O&M Manual and Rule Book documentation. Audits of security policies and procedures, tabletop and functional drills and full -scale exercises, coordinated with appropriate emergency response providers, are performed as part of system-wide readiness drills. System-wide readiness drills are performed at least twice per year. The drills are jointly planned in advance by the OAC Safety and Security Review Committee (SSRC) and other stakeholders and emergency response agencies as necessary. The SSRC establishes goals for each planned drill in terms of response and recovery times or other agreed-upon metrics. Prior to conducting readiness drills, the Operator ensures each of the Operating personnel are trained to respond to the drills and provides periodic system orientation to emergency response agencies as necessary. During the readiness drills, the Operator monitors and evaluates the efficiency with which the drill activities are

carried out and the responses of the various drill participants (Operator personnel, emergency response agency personnel, etc.). The observations and conclusions of these observers are documented and presented to the Line Manager, Operator's Safety Coordinator, and lead managers of other stakeholders and emergency response agencies participating in the drills. These individuals prepare a Drill Report, which presents the results of the drill, identifying any areas of deficiency, and recommends new/revised training and testing procedures for the ensuing year to rectify noted areas of inadequate response. The SSRC tracks the implementation of corrective actions into the emergency plans and/or drill preparations.

Representative readiness drills performed on a semi -annual basis may include:

- Bomb Threat
- Suspicious Package
- Smoke/Fire in Station/on Train
- Medical Emergency
- Other.

Based on the outcome of audits and drills, revisions to the emergency plans and procedures may be required. The System Safety Coordinator ensures that revisions to the plans and procedures are distributed to all appropriate emergency response agencies.

5.4 Communication of the Safety Management Policy

The safety management policy will be communicated in a rank-and-file format from new hires to current employees with hardcopies and/or e-copies distributed during New Hire Orientation, posted in operator and maintenance technician common spaces, provided to contracted personnel, and made available to all employees upon request. The BART CSO will be responsible for ensuring that, once the PTASP is approved by the Board annually, the safety policy is made available to all BART personnel, as described above. For eBART and OAC, the eBART Safety and Training Manager will ensure the message is made available to all employees and contracted operations and maintenance personnel.

5.5 Employee Safety Reporting

BART administers a comprehensive employee safety reporting program. Reporting programs differ from BART to eBART to OAC, but all programs are grounded in giving employees the opportunity to report safety concerns, risks, or questions to management without disciplinary action. All programs provide employees with the opportunity to identify themselves or to report anonymously. The BART System Safety Department is responsible for responding to all employee safety concerns and taking appropriate action and, where necessary, enact appropriate mitigations or responses. Furthermore, the BART System Safety Department is responsible for tracking all employee safety reports and integrating the results into its safety risk management programs.

Potential safety hazards in an employee's work area are to be reported to his/her immediate supervisor. If the employee is not satisfied with the response, he/she may complete a *BART Safety Notice (BSN)*. The completed form is given to the supervisor for comment and a copy, with comments, sent to the System Safety Department. The Manager of the Employee/Patron Safety Division within the System Safety Department investigates all such notices. Each investigation is undertaken to verify whether a safety hazard exists and to ensure that necessary corrective action has been implemented.

Employees will not face disciplinary action for reporting safety concerns unless the employee has been found to have willfully violated a rule or procedure in accordance with existing BART employee

requirements. Employee behaviors that may result in disciplinary action can be found in mode-specific operator and controller rulebooks, District employee code of conduct, and the collective bargaining agreements for BART and eBART (i.e., the Agreement with the Amalgamated Transit Union). OAC has a "5 Violations and Disciplinary Actions" document outlining the possible offenses and consequential disciplinary actions.

BART also provides all employees and contractors with a pocket-sized Safety Management System card (see Appendix D) that outlines core employee roles and accountabilities in SMS, with a listing of all methods for anonymously reporting safety concerns, hazards, near misses/close calls, and suggestions to the System Safety Department via email (SystemSafety@bart.gov). It includes phone numbers for various BART departments for reporting safety and security concerns and also includes a graphical depiction of personal protective equipment required for individuals working along the wayside.

All active BART Safety Notices are discussed at the next regularly scheduled meeting of the Joint Union/Management Health and Safety Committee (JUMHSC). If an employee feels that an imminent safety hazard exists and is not being adequately corrected, he/she may contact the System Safety Department for immediate investigation.

If an employee chooses to be identified when making a safety report, the Manager of the Employee/Patron Safety Division will respond to the employee with either an explanation of the mitigations taken or the analysis that led BART to determine a hazard does not exist or does not need mitigation. This will take place after either the JUMHSC meeting or an immediate System Safety Department investigation.

5.5.1 Roadway Worker Near Miss Program

The District maintains a Near Miss Program for the reporting and recording of near misses related to roadway workers in accordance with CPUC G.O. 175 Roadway Worker Protection. The purpose of the RWP Near Miss Reporting Program is to encourage employees to report near-miss incidents related to the safety of individuals located in (or adjacent to) the trackway due to (1) the movement of all on-rail vehicles on mainline, and in local control areas including shop tracks, and (2) the third rail power system associated with propulsion of revenue service vehicles. This program applies to BART and eBART. OAC maintains a separate, complementary RWP Near Miss Reporting Program that complies with CPUC G.O. 175.

The intent of these programs is to become knowledgeable of unsafe acts that would otherwise go undetected or unreported so that proactive corrective action can be taken. Employees wishing to file a report may enter the information on the Roadway Worker Near-Miss Reporting Form. Roadway Worker Near-Miss records are required to be retained for four years and made available to CPUC staff.

5.6 Plan Interface

The PTASP describes the District's holistic approach to ensuring the safety and security of its operations; correspondingly, the PTASP interacts with numerous plans and policies, including the agency's System Security Plan (SSP). This plan outlines the District's policies and procedures and describe the roles and responsibilities of all agency employees and contractors, beginning with the highest level of management.

5.7 Documentation and Recordkeeping

In accordance with 49 CFR Part 673.31, the District maintains all documents set forth in the PTASP, including those related to the implementation of SMS, and the results of SMS processes and activities for a minimum of three years. The results of all SMS activities are maintained at the agency entity responsible for their performance, unless otherwise specified.

Upon request, these documents shall be made available to the CPUC, FTA or another federal agency. Internally, the retention of records related to SMS processes and activities allows the District to review SMS performance as part of the agency's safety assurance activities.

6.0 Safety Risk Management

This section provides an overview of the safety risk and hazard management process developed by the District. This process defines the on-going identification of hazards, the methodologies used to evaluate and prioritize for elimination or control, the tracking of identified hazards through resolution, and the reporting of hazards to the oversight agency. Safety risk management is a component of the SMS that ensures safety risk mitigations are evaluated for effectiveness over time. The Safety risk management process detailed below is comprised of safety hazard identification, safety risk assessment, and safety risk mitigation.

The hazard management process is a primary tool used by the District to ensure the safety of its activities, facilities, and vehicles. This process is accessible to all levels of the organization and is the means by which hazards are identified and analyzed for potential impacts on the system. The principles of hazard identification, assessment, and resolution are the same for all three modes.

The specific, current approaches to hazard analysis are outlined in Section 6.2 by mode. The hazard management process follows Military Standard 882(e), with the guidelines as detailed below.

6.1 Safety Hazard Identification

Hazard identification is a process to discover conditions in the system that if not altered, have the potential to cause accidents, injuries, fatalities, or significant material losses. These conditions may be found in the form of physical hazards, unsafe actions, and policies that create or fail to recognize hazards. The System Safety Department is chartered to review, audit or otherwise oversee the activities, facilities, equipment and programs within the District to identify potential hazards to employees, patrons or equipment. Additionally, when new projects and programs are in the development stages, the System Safety Department endeavors to prevent these hazards from arising in the first place.

6.1.1 Identification of Operational Hazards

The System Safety Department identifies potential operational hazards and hazardous conditions in a variety of ways, including, but not limited to:

- Audits and inspections
    - Internal safety audits (See Section 7.1)
    - Facilities inspections
- Reports and complaints from passengers through contact with customer service, field personnel or management personnel
- Reports and reviews of BART Safety Notices (BSNs)
- Review of Unusual Occurrence Reports (UORs)
- Near Miss Reporting Program review
- Review of District compliance check data
- Investigation and review of accidents and incidents
- Safety data trend analysis
- Operations Safety Compliance programs
- BART Safety Hotline
- SSOA and FTA reports
- Other employee reports

The System Safety Department monitors the safety performance of all of the District's operations, including equipment and personnel. Safety-related data is analyzed, and plotted for trends and statistical analyses. Operating hazards are reported, discussed and tracked in the monthly Operations Summary reports, the monthly Accident, Hazard, and Corrective Action summary Report (CPUC Form V) and the CPUC-BART Quarterly Safety and Security Meetings. BART and eBART safety performance and statistical data are stored and organized in the Maximo Health, Safety, and Environmental (HSE) database system and, upon further IT development and implementation, will be presented on the District's SharePoint dashboard.

6.1.2 Safety Committees

Committees throughout BART serve as sources for hazard information. Committee participation includes the following:

1. **Joint Union/Management Health & Safety Committee (JUMHSC)**: There is one Joint Union/Management Health & Safety Committee. The Committee includes employee representatives from the Amalgamated Transit Union (ATU) Local 1555, the Service Employees International Union (SEIU) Local 1021, the American Federation of State, County and Municipal Employees (AFSCME) Local 3993, BART Police Management Association (BPMA) and the BART Police Officers Association (BPOA). The committee is comprised of a minimum of 18 employees; nine members selected by their respective unions, and the remaining nine members represent BART Management. A designee of the Chief Safety Officer chairs the committee. The committee is established under the ATU and SEIU Union/Management Labor Agreements.

   This committee was established to address safety problems that have not been solved at the supervisory management level. Those hazards that cannot be addressed immediately at the supervisory level or satisfactorily mitigated by a Local Safety Committee can be elevated to the JUMHSC. Any hazards that require a change or modification to systems, equipment, or procedures would need to rise to the JUMHSC for cross-departmental evaluation. Finally, any low-risk hazards that could be systemic should be brought to the JUMHSC by the designated management or union personnel for systemwide mitigation. The mitigation of hazards is reported in meeting minutes available to all personnel.

   The agenda includes coverage of key performance indicators such as injuries, accidents, and rule violations. The committee covers a wide range of safety topics, forms sub-committees with specific objectives (e.g., back injury reduction), and participates in accident reviews.

2. **BART System Safety Department Biweekly Meeting:** The System Safety Department holds a biweekly meeting in which the Chief Safety Officer and division managers review safety performance data, open investigations, open hazards, corrective actions, employee safety concerns, and other relevant information, include data to be submitted to the CPUC.

3. **eBART and OAC Safety and Security Review Committees (SSRC):** Both eBART and OAC hold separate safety and security review committee meetings where the eBART/OAC Manager of Safety and Training leads monthly reviews of safety performance data, open investigations,

open hazards, corrective actions, employee safety concerns, and other relevant information, include data to be submitted to the CPUC.

4. **Local Safety Committees**: Other safety committees may be formed from time to time at the discretion of BART Management in specific areas such as shops, specific buildings where BART employees work, or in construction and other field operations. RS&S Shop Safety Committees and M&E Safety Committee are some examples. In addition, committees may be formed to address specific issue such as recycling, special operational problems such as split switches, or stress management. Participation at these committees by the System Safety Department staff is at the discretion of the Chief Safety Officer. Hazards that cannot be addressed at the Local Safety Committee level or that may be systemic must be raised to the JUHMSC.

6.1.3 Coordinating with the State Safety Oversight Agency

As the aforementioned operational reports and data are evaluated, conditions that could result in serious injuries or significant property damage are reported to the Chief Safety Officer for further review. If the Chief Safety Officer determines that a reported condition is, in fact, an unacceptable hazard (As defined by Figure 6.1 or 6.5, Risk Assessment Matrices), the Chief Safety Officer, or his/her designee, will ensure actions are taken to mitigate the hazard and notify CPUC staff within 2 hours of making that determination. These high-risk, serious hazards will typically result in a full investigation according to the safety event investigation and reporting procedures in Section 7.4.

6.2 Safety Risk Assessment

6.2.1 BART and eBART Hazard Resolution Matrix

Potential safety hazards will be evaluated using a hazard resolution matrix as shown below in Table 6.1. The Hazard Resolution Matrix reflects the combined severity and probability ranking for each identified hazard. Risk assessment criteria shall be applied to the identified hazards based on their severity (Table 6.2) and probability of occurrence (Table 6.3), to determine acceptance of the risk or the need for corrective action to further reduce the risk.

Qualitative text descriptions of risk severity and probability are listed in Tables 6.2 and 6.3, respectively. Once severity and probability are assigned, the assessed risk is expressed as an alphanumeric Risk Assessment Code (RAC), which is a combination of one severity category and one probability level. RACs each have an associated risk level of High, Serious, Medium, Low or Eliminated, which determines the priority of the District's response.

Table 6.1: BART and eBART RISK ASSESSMENT MATRIX				
Severity / **Probability**	(1) Catastrophic	(2) Critical	(3) Marginal	(4) Negligible
(A) Frequent	High	High	Serious	Medium
(B) Probable	High	High	Serious	Medium
(C) Occasional	High	Serious	Medium	Low
(D) Remote	Serious	Medium	Medium	Low
(E) Improbable	Medium	Medium	Medium	Low
(F) Eliminated	Eliminated			

Matrix derived from MIL-STD-882E

Table 6.2: SEVERITY CATEGORIES		
Description	**Category**	**Mishap Result Criteria**
Catastrophic	1	Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.
Critical	2	Could result in one or more of the following: permanent disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M, but less than $10M.
Marginal	3	Could result in one or more of the following: injury or occupational illness, resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K, but less than $10M.
Negligible	4	Could result in one or more of following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.

Table 6.3: PROBABILITY LEVELS			
Description	**Level**	**Specific Individual Item**	**Fleet or Inventory**
Frequent	A	Likely to occur often in the life of an item.	Continuously experienced
Probable	B	Will occur several times in the life of an item.	Will occur frequently
Occasional	C	Likely to occur sometime in the life of an item.	Will occur several times
Remote	D	Unlikely, but possible to occur in the life of an item.	Unlikely, but can reasonably be expected to occur
Improbable	E	So unlikely, it can be assumed occurrence may not be experienced in the life of an item.	Unlikely to occur, but possible
Eliminated	F	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.

Table 6.4: RELATIONSHIP BETWEEN RAC AND RISK LEVEL		
RAC	**Risk Level**	**Response**
1A, 1B, 1C, 2A, 2B	High	Hazard is reported to the SSRC and an appointed CPUC SSOA representative, then followed/track in the monthly SSRC. The item is added to the Hazard Log, assigned a corrective action, and tracked in the CAP Log.
1D, 2C, 3A, 3B	Serious	Hazard is tracked in the Hazard Log, assigned a corrective action, and tracked in the CAP Log. Notification to the SSOA is not required.
1E, 2D, 2E, 3C, 3D, 3E, 4A, 4B	Medium	Hazard may be allowable; however, the CSO (for BART hazards) and the eBART Safety and Training Manager (for eBART hazards) is notified and deems if the hazard can be reduced further
4C, 4D, 4E	Low	Hazard has either been eliminated or the level of risk is low and cannot be reduced further.

6.2.2 BART and eBART Hazard Tracking

The Operations Safety Division of the System Safety Department is responsible for conducting safety assessments of operating hazards for BART operations. The eBART Safety and Training Manager is responsible for conducting safety assessments of operating hazards for eBART operations.

Potential risk mitigation(s) shall be estimated and documented in the District or eBART hazard tracking system. The goal should always be to eliminate the hazard, if possible. When a hazard cannot be eliminated, the associated risk should be reduced to the lowest acceptable level within the constraints of cost, schedule, and performance.

Depending on mode, after assessment of the severity and probability of a hazard, the Operations Safety Division or eBART SSRC will perform a determination regarding acceptance of the risk or taking

corrective action. Risk assessment issues of significant impact or those where there is a lack of consensus will be submitted to the executive leadership for resolution. Upon final approval by executive leadership, the resolution is placed into the hands of the responsible department(s) and/or the Contractor for implementation. The Operations Safety Division and eBART Safety and Training Manager are required to document all identified hazards with information required for monthly submittal to the CPUC.

During construction projects, an assessment of the potential hazards and possible safety mitigation measures will be conducted. The Preliminary Hazard Analysis (PHA), performed in the Preliminary Engineering phase, provides an initial assessment of hazards, and identifies possible controls and follow-on actions to eliminate or mitigate the hazards. The PHA will be performed in accordance with the BART Safety and Security Certification Plan (SSCP), Hazard and Vulnerability Management. Items in the Hazard and Vulnerability Tracking Matrix (HVTM) will be updated and will include a description of the measures that shall be taken to resolve the hazard. All hazards will be tracked for resolution in a HVTM until closed.

6.2.3 OAC Hazard Risk Matrix

OAC utilizes a similar process as BART for risk assessment. Investigations, evaluations, and analysis use the Risk Matrix shown in Table 6.5 below. Each hazard shall be assessed in terms of severity and probability of occurrence.

The following hazard risk matrix is used for risk assessment. Severity and probability are used together to provide a measure of the worst potential consequences resulting from human error, environmental conditions, design inadequacies, procedural deficiencies, subsystem/component failure or malfunction. This risk assessment is used as the basis for decision making to determine whether individual subsystem hazards should be eliminated, mitigated or accepted.

Table 6.5: RISK ASSESSMENT MATRIX FOR OAC

Severity / **Frequency**	Catastrophic	Critical	Marginal	Negligible
Frequent	Unacceptable	Unacceptable	Unacceptable	Acceptable with notification
Probable	Unacceptable	Unacceptable	Undesirable	Acceptable with notification
Occasional	Unacceptable	Undesirable	Acceptable with notification	Acceptable
Remote	Undesirable	Acceptable with notification	Acceptable with notification	Acceptable
Improbable	Acceptable with notification	Acceptable with notification	Acceptable	Acceptable
	I	II	III	IV

Risk matrix according to ASCE 21-05

Table 6.6: ASCE SEVERITY CATEGORIES		
Event Severity	**Category**	**Description**
Catastrophic	I	Death, system loss or severe environmental damage
Critical	II	Severe injury, severe occupational illness, or major system or environmental damage
Marginal	III	Minor injury, minor occupational illness, or minor system or environmental damage
Negligible	IV	Less than minor injury or occupational illness, or less than minor system or environmental damage

Table 6.7: ASCE PROBABILITY CATEGORIES		
Frequency of Occurrence	**Category**	**Description**
Frequent	A	MTBHE is less than 1,000 operating hours
Probable	B	MTBHE is equal to or greater than 1,000 operating hours, but less than 100,000 operating hours
Occasional	C	MTBHE is equal to or greater than 100,000 operating hours, but less than 1,000,000 operating hours
Remote	D	MTBHE is equal to or greater than 1,000,000 operating hours, but less than 100,000,000 operating hours
Improbable	E	MTBHE is equal to or greater than 100,000,000 operating hours

Table 6.8: RISK ASSESSMENT RESPONSE	
Risk Level	**Response**
Unacceptable	Hazard is reported to the SSRC and an appointed CPUC representative, then followed/track in the monthly SSRC. The item is added to the Hazard Log, assigned a corrective action, and tracked in the CAP Log.
Undesirable	Hazard is tracked in the Hazard Log, assigned a corrective action, and tracked in the CAP Log. Notification to the SSOA is not required.
Acceptable with notification	Hazard may be allowable; however, the eBART Safety and Training Manager is notified and deems if the hazard can be reduced further
Acceptable	Hazard has either been eliminated or the level of risk is low and cannot be reduced further.

6.2.4 OAC Hazard Tracking

The Operator documents and tracks hazards through the OAC Hazard Log and Corrective Action Report until final resolution is achieved. For hazards not identified through the safety certification process, many hazards are tracked through the committees described earlier in this section. Each committee keeps meeting minutes with either a supplemental or an embedded OAC Hazard Log that contain:

- A hazard identification number
- The date of hazard identification
- The source of the hazard identification (inspection, employee report, etc.)
- Full details of the hazard
- An initial risk rating
- Information to date on evaluation of the hazard
- Progress updates and/or action items to continue evaluating the hazard or regarding its immediate mitigation
- A final risk rating
- Status (open or closed)
- Reference to a Corrective Action Plan, if the mitigation cannot be implemented immediately.

A designated System Safety Department representative also maintains an operational Hazard Log which contains miscellaneous hazards not tracked through the safety committees. Such hazards may come from other sources of identification listed earlier in this section, such as direct reports to the System Safety Department or trends identified through its own inspections.

All hazards identified through the safety certification process, except those assessed as "acceptable" will be tracked for resolution in the OAC Hazard Log. Items in the OAC Hazard Log will be updated and include a description of the measures that shall be taken to resolve the hazard. Items identified in the OAC Hazard Log may require additional analysis to be performed by the Contractor in the Final Design stage, for hazards identified during construction projects, or by a member of System Safety, for hazards identified elsewhere. Open items will be tracked until closure.

6.3 Safety Risk Mitigation & Resolution

Many hazards can be resolved immediately by personnel in the department where they exist; however, hazards that are more systematic or require a more involved resolution will be tracked by the System Safety Department. After assessment of the severity and probability of a hazard, System Safety Department personnel will make a determination regarding acceptance of the risk or taking corrective action by using the hazard matrix (depending on the source of the hazard and where it is being tracked). A committee may be formed to assess significant hazards, or the hazard may be raised for discussion and evaluation at one of the standard BART committee meetings. Hazard mitigations that cannot be implemented immediately should result in a Corrective Action Plan. CAPs must contain the material required in Section 7.8 of the PTASP. CAPs must also be presented to the CPUC for approval prior to implementation. Once approved, the hazard can be closed on the minutes/Hazard Log and the CAP can be added to the District CAP Log maintained by the System Safety Department.

Risk assessment issues of significant impact or those where there is a lack of consensus will be submitted to the executive leadership for resolution, typically through the JUHMSC. Upon final approval

by executive leadership, the resolution is placed into the hands of the responsible department(s) and/or the contractor for implementation.

6.3.1 BART Requirements for Safety Analysis Review Process for Construction Projects

The Project/Modification Safety Technical Review applies to proposed new facilities or equipment, or any modifications to existing facilities, equipment or software where a formal system analysis is considered necessary by the System Safety and/or Engineering Departments. The System Safety Department makes the final determination on safety-related matters, including which projects and modifications require the preparation of a system safety analysis and/or safety certification. Typically, these analyses are performed under contract by a consultant or by the Engineering department responsible for the project or modification. These analyses are reviewed by the System Safety Department staff for comment and concurrence.

The department involved with the design of a project or modification prepares analyses in the following manner:

1. A Safety Engineer is assigned to monitor the progress of the project or modification. Liaison is established to gain familiarity with the project's technical details.
2. In the early stages of review, proposed modifications that have a potential safety impact are identified and a commitment by Engineering is established for the preparation of appropriate safety analyses. The final installation or construction of such modifications is prohibited until the analyses have been completed and reviewed by the System Safety Department. Specific existing safety-critical systems or related procedures may be identified by the Engineering or System Safety Departments, for which system safety analyses are required.
3. The System Safety Department review of system safety analyses is designed to achieve the following objectives:
    a. Technical Accuracy – Description of system is correct and adequate.
    b. Completeness – All know potential failure modes and their effects on the system have been analyzed.
    c. Correct Conclusions – Reasonable conclusions are reached based upon analyses.
    d. Risk Assessment – Make a final determination of the risk assessment based upon review of analyses.
    e. Adequacy of Project or Modification – Make a judgment as to whether or not safety is compromised should the project or modification be implemented.

The System Safety Department staff is responsible for making risk assessments of situations, such as facility or equipment functionality/maintenance, use of certain chemicals, application of certain rules or procedures, etc. These risk assessments are used to determine if the situation in fact represents an unacceptable or undesirable hazard and is reportable to management. As a guide in making such determinations, the Hazard Resolution Matrix is used. This matrix is for both formal operations and construction project hazard analysis.

Hazard resolution requires a commitment by the responsible department management to correct or mitigate all identified "unacceptable" and "undesirable" hazards to an acceptable level. The Chief Safety Officer is responsible for implementing the District's safety policy.

It is thus the responsibility of the Chief Safety Officer to provide the General Manager with the District's safety goals and objectives and keep him/her informed of their levels of attainment and of any extraordinary safety matters which may have significant District impact.

Formal reporting from the Chief Safety Officer to other District organizations is addressed to the Department Heads, for it is their responsibility to ensure implementation of safety-related tasks within their organizations. The Safety Staff have access to all District personnel, which encourages face-to-face informal information flow.

The System Safety Department periodically audits on-going projects, modifications, maintenance activities, and other selected District activities, to ensure that adequate corrective action is being performed in a timely manner.

Preliminary Hazard Analysis for Construction Project Hazard Evaluation

An assessment of the potential hazards and possible safety mitigation measures that may be associated with the implementation of a major construction project such as a system extension will be conducted. The Preliminary Hazard Analysis (PHA), performed in the Preliminary Engineering phase, provides an initial assessment of hazards, and identifies possible controls and follow-on actions to eliminate or mitigate the hazards. The PHA will be performed in accordance with the Safety and Security Certification Plan (SSCP), Hazard Vulnerability Management. All identified hazards shall be tracked through to resolution. Although the PHA will provide a useful checklist for guiding design reviews, formal verification that the identified hazards are closed will occur in subsequent safety analyses and/or during the Safety Certification process.

Methodology: An inductive, or top-down, approach will be employed in the preliminary hazard analyses. Significant or top-level events (i.e. hazards) will be initially identified, followed by what might cause them, and then by a determination of what might be their effect on the total system.

Identification of Hazards: The methods used for identifying hazards contained in a PHA might include examining the design and operation concepts defined in the Construction Project's preliminary engineering specifications and drawings and examining historical information and data from similar transit systems. Where references are made to operating procedures, rules, etc., they are based on current industry practices. Hazards likely to result in an accident involving personal injury, death, or property damage will be identified.

Each potential hazard will be analyzed to determine likely causes and effects of a related accident. Worst case consequences will be identified and described. The process involves the analysis of critical elements to identify components and equipment failure modes, their potential effects on all or part of the operating system, and the actions taken by personnel. Assessment and evaluation of the effectiveness of the mitigation measures and how well the engineered safety systems or procedures serve to prevent and/or mitigate the effects of the hazard will be conducted. Subsequently, after implementation of the identified hazard mitigation controls, the potential hazard severity can be alleviated to an acceptable level.

Resolution of Hazards: Mitigation of the risk associated with each hazard to the lowest practical level can be accomplished in a variety of ways. The order of precedence for eliminating or controlling hazards is:

- Eliminate the potential hazard in the system design
- Design to control potential hazards
- Use safety devices
- Use warning devices
- Implement procedures and training

There are some hazards that may be impossible to eliminate and other hazards that may be highly impractical to eliminate. When a potential hazard cannot be eliminated or controlled by system design, a systematic approach to mitigate the risk associated with each hazard to the lowest practical level can be accomplished in a variety of ways. Listed below are some examples of the accepted safety control methods used for the determination of a Category III or a Category IV Hazard as classified under "Controlled Hazard Severity."

- Surveillance/Detection/Monitoring Devices
- Warning/Safety Devices
- Deterrence strategies/Access Control
- Engineering design change or implementation of engineering control
- Security and Patrol
- Public Awareness
- Employee adherence to operating rules, procedures, test plans, and cautionary notifications
- Employees, contractors, emergency response and rescue workers successful completion of:
    - Training/Drills
    - Required re-certification
- Performance of regular inspections and maintenance programs
- Equipment testing and field verification

Coordination with the State Oversight Agency: For construction projects, a hazard management program is an element of the Safety and Security Certification Plan (SSCP) that is subject to CPUC oversight. CPUC staff routinely monitors activities associated with the SSCP, and the Hazard Management Certificate of Compliance is ultimately submitted to the CPUC.

6.4 Transit Asset Management

In accordance with 49 CFR Part 625, BART has developed a Transit Asset Management Plan (TAM), which contains a comprehensive summary of all District assets and a rating of their condition. The TAM Plan includes a process for reviewing asset funding needs in the short and long term, and is a proactive effort to assess hazards through the assessment of the condition of all District assets and the prioritization of projects to maintain the assets for safe operation. The overall goal of TAM Plan is to document the District's asset management activities to demonstrate compliance with the FTA TAM rulemaking. The TAM Plan represents the agency's commitment to implementing and continuously improving asset management activities across all agency operations and services. The TAM Plan can be made available from the Operations Planning Department that administers the District's Asset Management Program.

7.0 Safety Assurance

The safety assurance process outlined below details the activities by which BART, eBART, and OAC each monitor and measure their safety performances to ensure that they are meeting or exceeding the safety objectives set by the District. If the District or its modes identify safety risk through these safety performance assessments, then it must take action to correct the deficiencies.

Safety risk management feeds into the SMS safety assurance process to ensure safety risk mitigations are evaluated for effectiveness over time. The safety performance targets in Section 4.1 guide the safety performance assessments of the safety assurance process. The safety risk management process identifies and evaluates safety risks, which are then assigned specific mitigations to correct the identified deficiency. The safety assurance process monitors those mitigations, and other safety practices, to evaluate their effectiveness.

Safety assurance activities include internal audit reviews, operation rules and procedures reviews, facilities and equipment inspections, maintenance audits and inspections, operating rule compliance checks, event reporting and investigation, the drug and alcohol program, and management of change procedures (i.e., procurement, system modification, safety certification), all of which serve as a foundation for continuous improvement processes (i.e., safety data acquisition and analysis, corrective action plans).

7.1 Safety Performance Monitoring and Measurement

7.1.1 Internal Safety Audit Reviews for BART

The District has established safety and security as the major considerations in all operations of its transit system. Internal safety and security audits are one of the methods to achieve this goal. The internal safety and security audit serves as a management tool that provides assistance in discovering possible problem areas.

CPUC has issued G.O. 164, which requires that the District (1) submit a schedule of internal safety and security audits to CPUC, (2) document the performance of internal safety and security audits in an annual report accompanied by a formal letter of certification signed by the General Manager indicating that the District is in compliance with its PTASP and System Security Plan (SSP), and (3) submit the report to CPUC. These requirements apply to BART, eBART, and OAC; however, the latter two modes differ from BART in the party responsible for the implementation of the internal audit program. The eBART and OAC internal audit programs are detailed in PTASP Section 7.1; however, the key distinctions between the three modes are highlighted throughout the BART internal audit program section below.

Scope of Activities

Under the direction of the General Manager, the Chief Safety Officer has overall responsibility for administering the Internal Safety and Security Audit Program. The System Safety Department is responsible to plan, schedule, and implement an internal safety and security audit program in compliance with state requirements. The eBART Safety and Training Manager and OAC Line Manager are responsible for the planning, scheduling, and implementation of their respective internal audit programs.

Other departments, such as Maintenance and Engineering; Rolling Stock and Shops; Transportation; BART Police; Administration; and Planning, Development and Construction are responsible for providing

support and assistance in the performance of safety and security audits and for implementing corrective action plans as required.

Typical audit activities may include record reviews, physical inspection of plants and equipment, interviews, and observations of operations and other line activities.

While ongoing inspections may be conducted on an unannounced, unscheduled, and independent basis, actual audits are typically performed on a coordinated basis, with full management support. Types of documentation that may be required to ensure audit completeness include but are not limited to the following: maintenance procedures, training manuals, equipment specifications, rules/regulations, management program plans, PTASP, standard operating procedures, emergency procedures, configuration management plan, hazardous materials management plan, administrative procedures, rule book, train operators manual, safety rules, fire and life safety codes, and facilities standards.

Safety audits focus on safety related BART activities. Examples of audit areas include, but are not limited to the following:

- Safety and security documentation review and revision
- Hazard management program
- System modification review and approval process
- Safety certification of projects and extensions
- Emergency response planning, coordination, and training
- Safety data acquisition and analysis
- Accident/incident notification, investigation, and reporting
- Internal safety and security audit process
- Development, maintenance, and compliance with operating rules and procedures
- CPUC G.O. 172 and G.O. 175 compliance
- Performance of facilities inspections
- Inspection, testing, certification, maintenance, and repair of equipment and systems
- Training and certification of employees and contractors
- Configuration management
- Employee safety programs
- Hazardous materials program
- Drug and alcohol program
- Procurement control process
- Security Plan Compliance

Listed below are selected samples of a list of BART departments (organizational units), the associated elements/characteristics that are subject to the internal audit process and the reference criteria that would be used.

<u>Maintenance and Engineering – Reliability Programs</u>

- BART Engineering Change Orders (BECOs)
    - BECO Instructions
- Employee in Charge (EIC) Training, Certification, and Performance
    - Operations Rules and Procedures Manual

    - BART PTASP
    - BART EIC Certification Training Program
    - Standard Procedure for Access to the BART Operating System
- Contractor Training and Certification
    - Operations Rules and Procedures Manual
    - Standard Procedure for Access to the BART Operating System
    - BART Contractor Certification Training Program

Transportation

- Training and Certification of Train Operators, Station Agents, and Tower Foreworkers
    - BART PTASP, Section 8.1 – Training and Certification
- Train Operator and Tower Foreworker Performance
    - BART PTASP
        - Section 8.1 – Train Operator Evaluations Program
        - Section 8.1 – Schedule of Training and Recertification
    - Operations Rules and Procedures Manual
    - Transportation Foreworker Manual
    - Train Operator Manual

Human Resources Department – Employee Services Division

- Drug and Alcohol Testing Program
    - 49 CFR Parts 655 and 40
    - BART PTASP – Section 7.5
    - BART Substance Abuse Program, Policies and Procedures Manual

Maintenance and Engineering – Grounds

- Monthly Fence Inspection
    - District Fence Inspection and Monthly Fence Report

Maintenance and Engineering – Traction and Power Wayside Electrical/Mechanical

- Third Rail Coverboard Inspection and Maintenance
    - Power and Way Electrical Maintenance Procedures, Book 31, Chapter 1, Section 17
- Standpipes and Associated Pumps in Walnut Creek, Berkeley Hills, and Transbay Tube Tunnels
    - Service Test Procedure for Horizontal Class I Standpipes in the Walnut Creek, Berkeley Hills, and Transbay Tunnels
- Station Fire Alarms and Sprinkler Systems
    - Periodic Maintenance Requirements for Fire Alarm and Fire Sprinkler Systems (Passenger Stations)
- Emergency Ventilation Fans
    - Power and Way Electrical Maintenance Procedures Book 31

Maintenance and Engineering – Track Wayside Grounds and Structures

- Weekly Track Inspection
    - BART's Track Standards Manual, Section S7.0 – Inspection
- Monthly Turnout Inspections
    - BART's Track Standards Manual, Section S7.0 – Inspection

- Quarterly Turnout Measurements
    - BART's Track Standards Manual, Section S7.0 – Inspection
- Special Inspection Requirements following Derailments and Switch Run Throughs
    - BART's Track Standards Manual, Section M7.10 – Special Inspections; Section M7.11 Derailments and Run-Through Switches
- Turnout Inspection
    - BART's Track Standards Manual, Section S6.0 – Turnouts and Track Crossing Diamonds
- Geometry Car Inspections
    - BART's Track Standards Manual, Section S7.0 – Inspection
- Internal Rail Defects Inspections
    - BART's Track Standards Manual, Section S7.0 – Inspection
- Joint Inspection of Switches
    - BART Track Safety Standards, Table S7.1

<u>Maintenance and Engineering – Train Control</u>

- Vital Relays
    - Vital Relay Preventative Maintenance Procedures, Train Control Maintenance Procedures
- Train Control Equipment Preventative Maintenance and Inspection
    - Train Control Preventative Maintenance Procedure
- Switch Machine Inspection and Maintenance
    - Model 55G Preventive Maintenance Procedure, Train Control Maintenance Procedures
- Joint Inspection of Switches
    - BART Track Safety Standards, Table S7.1

<u>Maintenance and Engineering – AFC, Communications, Computers</u>

- Emergency Telephones
    - BART Periodic Inspection Procedure for Emergency Phones

<u>Rolling Stock and Shops</u>

- Preventive Maintenance Program for Transit Vehicles
    - Book 86: A2/B2 – Car Preventive Maintenance Requirements
    - Book 50: C – Car Preventive Maintenance Requirements
    - RS&S Kiosk - D/E Car Intermediate Manuals

<u>System Safety</u>

- Operating Bulletins
    - BART PTASP, Section 6.2
- BART Safety Notices
    - BART PTASP, Section 5.5 and 6.1
    - Instructions for Processing BART Safety Notices Attached to Form No. 0836
- Station Safety Inspections
    - BART PTASP, Section 6.2 – Facilities Inspections
- Revision of the Operations Rules and Procedures Manual
    - CPUC Decision No. 95-12-034, dated 12-18-95
    - BART PTASP, Section 6.2

- Internal Safety and Security Audits
    - BART Safety Plan, Chapter 6
    - CPUC G.O. 164, Requirements for Internal Safety and Security Audits
    - CPUC G.O. 172, Use of Personal Electronic Devices
    - CPUC G.O. 175, Roadway Worker Protection

Internal Safety and Security Audit Process

The System Safety Department is authorized to conduct internal safety and security audits of any District department. To accomplish this, the System Safety Department has established the Internal Safety and Security Audit Process (ISSAP). Each process of the SMS and its associated activities, as outlined in the PTASP, are reviewed in accordance with the internal audit schedule. The System Safety Department ensures that appropriate department managers receive copies of pertinent audit checklists with results and recommendations. Each recommendation requires the Department manager to implement the appropriate corrective action(s). Controls used to ensure that corrective actions are implemented and completed include the circulation of quarterly status reports to BART upper management.

The following steps will be followed in planning, scheduling, and performing safety and security audits:

- System Safety will publish an audit schedule annually. Audits will be scheduled throughout the year. The annual audit schedule should be provided to the CPUC. The schedule spreads audits of all PTASP topics over a three-year period.
- The assigned auditor will contact the manager of the department scheduled for audit. The manager of the department will be provided with the audit checklists in advance of the audit for preparation purposes.
- The auditor will notify the CPUC of scheduled audits a least 30 days prior to the audit date.
- Auditors shall be independent from the first line of supervision responsible for the activity being audited.
- Prior to the audit, the auditor will brief department personnel on the scope and purpose of the audit.
- The audit will be performed according to the checklists that have been prepared in advance by the auditor.
- Exceptions to the audit criteria will be noted on the checklists. Any exception noted by the auditor will be immediately brought to the attention of the department representative.
- Upon completion of the audit, the auditor will hold an exit meeting with department personnel to review and discuss the audit findings, exceptions, and any corrective actions that may be appropriate.
- The auditor will enter the audit results on the checklist. This will constitute the preliminary report including all findings, exceptions, and recommendations. The System Safety Department ensures that appropriate department managers receive copies of pertinent audit checklists with results and recommendations. Each recommendation requires the Department manager to implement the appropriate corrective action(s).
- The auditor will make contact with the department manager to discuss the preliminary report, which will have been circulated to the manager in advance.

- The purpose of the preliminary report contact will be to correct any errors in the preliminary report and to go over findings, exceptions, and conclusions and to develop appropriate correction action(s) that will be included in the final report.
- The final audit will be completed using the checklist form and will be distributed to BART management.

Cycle/Schedule

The ISSAP ensures that planned and scheduled internal safety and security reviews are performed to evaluate compliance with the PTASP and SSP. A three-year audit schedule will be developed to ensure that all PTASP and SSP elements are reviewed and evaluated during the audit cycle. During this review, the ISSAP will determine if all organizational elements, equipment, procedures, and functions are performing as intended from a safety and security perspective. Audit reports will be issued with recommendations to address all deficiencies and findings.

Checklists and Procedures

The District must notify the CPUC at least thirty (30) days before conducting any scheduled internal safety audits and reviews. A list of items to be audited will be prepared in advance and the methodology for conducting the audit will be defined. Audit activities may include record reviews, inspections, interviews, and observations of operations, maintenance, administrative and other line activities. The oversight agency retains the authority to observe each internal safety audit. For OAC, the District, with the support of the Operator and the designated auditing representative, will develop audit checklists and submit them to CPUC prior to the audit for review.

Audit Reporting

An audit report will be prepared to document the results of each internal audit and will be provided to all appropriate levels of management. At a minimum, this report will contain an overview of the activities performed, the completed checklists, and any findings, recommendations or concerns identified. CAPs are required in response to Internal Safety and Security Audit recommendations and must follow the requirements and steps listed in Section 7.8.

Annual Audit Report

System Safety will prepare an annual audit report, approved and signed by the CSO, documenting its activities and findings over the last year and submit this report to the General Manager/Accountable Executive, and subsequently the CPUC, for review and approval. The annual report will include the following:

- A description of each internal safety and security audit conducted during the past twelve months;
- A summary of the significant audit findings;
- A summary of corrective actions generated by each audit;
- The status all findings, recommendations, and corrective actions resulting from each audit; and
- The eBART Annual Internal Safety and Security Audit Report;
- The OAC Annual Internal Safety Audit Report.

The Annual Internal Safety and Security Audit Report will be accompanied by a formal letter of certification signed by the General Manager/Accountable Executive, indicating that BART is in compliance with its PTASP and SSP. If findings from its internal safety and security audits indicate that

BART is not in compliance with its PTASP and SSP, then the General Manager must identify the activities that BART will take to achieve compliance. The oversight agency must formally review and approve the annual report.

Coordination with the Oversight Agency

The Internal Safety and Security Audit process and reporting must be coordinated with the CPUC. The state oversight agency may request completed reports and status updates regarding the implementation of recommendations.

7.1.2 Internal Safety Audit Reviews for eBART

Scope of Activities

Under the direction of the General Manager, the Chief Safety Officer has overall responsibility for administering the Internal Safety and Security Audit Program. The eBART Safety and Training Manager is responsible for planning, scheduling, and implementing the internal eBART Safety Audit Program that is in compliance with state requirements.

Audits are performed on a coordinated basis with full management support. Types of documentation that may be required to ensure audit completeness include, but are not limited to, the following:

- Operating and emergency procedures
- Operating and maintenance manuals
- Safety and security documentation review and revision
- Hazard management program
- Emergency response planning, coordination, and training
- Safety data acquisition and analysis
- Accident/incident notification, investigation, and reporting
- Emergency response planning, coordination, and training
- Internal safety and security audit process
- Development, maintenance, and compliance with operating rules and procedures
- Facilities inspections
- Inspection, testing, certification, maintenance, and repair of equipment and systems
- Training and certification of employees and contractors
- Configuration management
- Drug and alcohol program
- Procurement control process
- Security Plan Compliance

Internal Safety and Security Audit Process

The eBART Safety and Training Manager is authorized to conduct internal safety and security audits of any department. The eBART Safety and Training Manager ensures that appropriate department managers receive copies of pertinent audit checklists with results and recommendations. Each finding requires the Department manager to submit a corrective action plan with implementation schedule to the eBART Safety and Training Manager. Controls used to ensure that corrective action plans are implemented and completed include the circulation of quarterly status reports to BART executive management.

Cycle/Schedule

The ISSAP ensures that planned and scheduled internal safety and security reviews are performed to evaluate compliance with the PTASP and SSP. A three-year audit schedule will be developed to ensure that all PTASP and SSP items are reviewed and evaluated during the audit cycle. During this review, the ISSAP will determine if all organizational elements, equipment, procedures, and functions are performing as intended from a safety and security perspective. Audit reports will be issued with recommendations to address all deficiencies and findings.

Checklists and Procedures

eBART must notify CPUC at least thirty (30) days before conducting any scheduled internal safety audits and reviews. A list of items to be audited will be prepared in advance and the methodology for conducting the audit will be defined. Audit activities may include record reviews, inspections, interviews, and observations of operations, maintenance, administration and other line activities. The oversight agency retains the authority to observe each internal safety audit. The eBART Safety and Training Manager will provided copies of all checklists and procedures used to conduct its safety audits.

Audit Reporting

An audit report will be prepared to document the results of each internal audit and will be provided to all appropriate levels of management. At a minimum, this report will contain an overview of the activities performed, the completed checklists, and any findings, recommendations or concerns identified. CAPs are required in response to Internal Safety and Security Audit recommendations and must follow the requirements and steps listed in Section 7.8.

Annual Audit Report

System Safety will prepare an annual audit report of eBART documenting its activities and findings over the last year and submit this report to the General Manager/Accountable Executive, and subsequently the CPUC, for review and approval. The annual report will include the following:

- A description of each internal safety and security audit conducted during the past twelve months;
- A summary of the significant audit findings;
- A summary of corrective actions generated by each audit; and
- The status of all findings, recommendations, and corrective actions resulting from each audit.

The eBART Safety and Training Manager issues a memorandum transmitting the Final Annual Internal Audit Report to the CSO and indicates that the eBART is in compliance with the relevant sections of the PTASP. Prior to February 15 of each year, the District will submit the Annual Audit Report to CPUC together with a certification letter signed by the General Manager/Accountable Executive indicating eBART is in compliance with the PTASP.

If findings from its internal safety and security audits indicate that eBART is not in compliance with either document, then the BART General Manager/Accountable Executive must identify the activities that eBART will take to achieve compliance. The oversight agency must formally review and approve the annual report.

7.1.3 Internal Safety Audit Reviews for OAC

Internal Audit Schedule

The District prepares and maintains a three-year audit schedule to verify compliance with the PTASP and SSP. Each element is audited at least once during the three-year cycle. The District submits the schedules, including any subsequent changes, to CPUC staff at least 30 days prior to conducting the audits or when a new three-year cycle begins. The OAC Line Manager is responsible for ensuring that the internal audit schedule is maintained and for ensuring corrective actions are tracked through completion.

The District reserves the right to perform unannounced and unscheduled inspections, which may not be part of the formal internal audit plan.

Safety Audit Reporting

Each process of the SMS and its associated activities, as outlined in the PTASP, are reviewed in accordance with the Internal Audit Schedule. At the conclusion of individual element audits, a report is to be submitted for follow-up action.

The audit report shall state the results of the audit in terms of the adequacy and effectiveness of the PTASP, and shall include the status of subsequent findings and corrective actions. The audit report shall include the following information:

- Scope and methodology of audit
- Audit checklists
- Audit findings
- Corrective actions

CAPs are required in response to Internal Safety and Security Audit recommendations and must follow the requirements and steps listed in Section 7.8.

If necessary, the Operator shall meet with the OAC Line Manager to review and discuss the findings. If a dispute exists, the Operator's O&M Manager and the Line Manager share the authority in resolving the dispute and any corrective actions noted in the audit report.

A final report is issued to the Line Manager and CSO with 60 days of the audit date.

Annual Audit Reporting

Prior to December 15 of each year, a draft Annual Internal Safety Audit Report for OAC is prepared by the Operator and issued to the Line Manager for review and comment. The report is a compilation of the individual element audit reports performed during the year and shall state the results of each audit in terms of the adequacy and effectiveness of the PTASP. It shall also include the status of subsequent findings and corrective actions. The Operator and the Line Manager shall work together to finalize the report, and the Operator shall submit the final report to the Line Manager no later than January 15.

The Line Manager issues a memorandum transmitting the Final Annual Internal Audit Report to the CSO and General Manager/Accountable Executive and indicates that the OAC is in compliance with the relevant sections of the PTASP. If compliance cannot be certified, the memorandum shall identify the activities that are being taken to achieve compliance.

Prior to February 15 of each year, the District will submit the Annual Audit Report to CPUC together with a certification letter signed by the General Manager/Accountable Executive indicating OAC is in compliance with the PTASP. If BART cannot certify PTASP compliance, the letter is provided with the audit report that identifies the activities that are being taken to achieve compliance. BART will include the OAC's Annual Internal Audit Report with its annual audit report submittal, described in Section 7.1 above. CPUC reviews and approves the report or notes areas requiring correction. The Operator and/or BART Safety may revise the report and resubmit it or petition CPUC to approve the final report.

7.2 Rules Compliance

Operating rules and procedures are conveyed differently depending on the District mode. For BART, these rules and procedures are conveyed in various general and specialized rulebooks, operating bulletins specific to BART, and BART standard operating procedures (SOPs). For eBART, rules and procedures can be found in the eBART Code of Operating Rules (eCOR), eBART-specific operating bulletins, and eBART SOPs. OAC uses its own O&M Manual, rulebooks, and SOPs. The rules and procedures that affect passenger and employee safety are subject to compliance monitoring activities. These safety-critical rules and procedures may also be reviewed and audited during the Internal Safety and Security Audit. Accountability for safety rests with each employee, supervisor, and manager. All are responsible for meeting the safety requirements inherent to their positions.

7.2.1 BART Operations

The Operations Rules and Procedures Manual contains those rules and procedures governing BART operation and are applicable to all District employees, contractors, and others working on District property. Compliance with the Operating Rules and Procedures (OR&P) is essential to the safe operation of the BART system. All other manuals shall be supplementary to and not conflict with the OR&P Manual.

The Chief Safety Officer (CSO) has the authority and responsibility for development and control of the District OR&P Manual, Roadway Worker Protection Manual, and Operating Bulletins.

Supplementary Operations Manuals address a specific job assignment or function within a department, division or section. These manuals shall be developed, issued, implemented, and controlled by the issuing department.

Supplementary Operations Manuals include:

- Operations Control Center Rules and Procedures Manual
- Train Operator Manual
- Station Agent Manual
- Transportation Foreworker Manual (Tower Foreworker Manual)
- Maintenance and Engineering Track Standards

Review and Revision of Rules and Procedures for BART

To be in compliance with CPUC Decision No. 95-12-034, BART will annually review and revise, as needed, the OR&P Manual, supplementary operations manuals, and operating bulletins to ensure that the manuals are up to date in all respects and that appropriate revisions will be prepared and issued as dictated by the results of the required annual reviews.

The Chief Safety Officer is responsible for the review, revision, control and distribution of the OR&P Manual and Operating Bulletins. The department manager of the issuing department is responsible for the review, revision, control and distribution of Supplementary Operations Manuals. Deviations from this procedure must be approved by the Chief Safety Officer.

Review:

OR&P Manual:

An annual review (including Operating Bulletins) with revision, as required, shall be the responsibility of the Chief Safety Officer and shall occur at the beginning of the calendar year (as operational requirements dictate).

The results of the annual review of the OR&P Manual and active Operating Bulletins shall be documented in a memorandum to file. The memorandum to file should provide a summary of the results of the review and the CSO determination as to whether a revision is required.

Revisions:

OR&P Manual:

The revision process for the OR&P Manual is as follows:

- Determine if requests for revision have been made to the Chief Safety Officer by department manager.
- If requests have been made, the Chief Safety Officer will determine whether a rules committee should be formed to review and recommend approval of the revision to affected department managers.
- The Chief Safety Officer or designee shall review active operating bulletins and determine whether any should be incorporated in the Operations Rules and Procedures Manual.
- To ensure standardization, these revisions shall receive concurrence from all department managers affected.

The revision process for Supplementary Operations Manuals is as follows:

- Department managers may revise Supplementary Operations Manuals with documents other than the OR&P Manual. Such revisions shall be in writing and signed by the Department Manager.

The revision process for Operating Bulletins is as follows:

- Operating Bulletins are reviewed each year with the OR&P Manual. Operating Bulletins are either incorporated into the OR&P Manual (by revision), cancelled or renumbered and reissued.

Personnel Responsibility:

- It shall be the responsibility of personnel receiving revised pages of a manual to insert them in proper sequence.
- Operating Bulletins should be distributed to or otherwise made available to personnel who could be affected by the Operating Bulletin.
- The department manager is responsible for ensuring that all personnel under his/her jurisdiction receive revisions to manuals and applicable operating bulletins.

Records and Documentation:

- Revised pages shall indicate revision number and/or revision date and the rule change.
- Revisions to the OR&P Manual and Supplementary Operations Manuals may be issued on an Operating Bulletin.
- Authorization for printing the OR&P Manual, in whole or in part, shall be the responsibility of the Chief Safety Officer.
- Records and documentation of the Operations Rules and Procedures Manual shall be maintained by the Documentation Division of Maintenance and Engineering.
- Revisions to the OR&P Manual shall be distributed to all District personnel with records of distribution maintained by each Department. The initial issue of the OR&P Manual to new hire employees is the responsibility of Human Resources. The CPUC, Rail Transit Safety Section, shall be provided with all revisions.

Process for Ensuring Rules Compliance

The District uses three processes to evaluate compliance with appropriate safety rules: 1) Train Operator Evaluations Program, 2) Internal Safety and Security Audit Program, and 3) Operations Safety Compliance Program. The results of these processes are reviewed and areas requiring attention are discussed with supervision. Plans to address rules compliance issues are developed with appropriate supervision.

Train Operator Evaluations Program

The Train Operator Evaluations Program consists of observations performed by Operations Supervision to determine whether or not train operators are adhering to the District's operating rules. For each evaluation, a checklist is completed by the Supervisor and the results of the evaluation are discussed with the Train Operator. All observed rule violations, if any, are enforced by the applicable Line Manager. Disciplinary action is administered in accordance with District policy.

At least once in every three-year audit cycle, the System Safety Department audits the Transportation Department. The audit includes a records review of the Train Operator Evaluations Program and first hand observations of train operator performance on main line and in yards. More information on the internal safety and security audits can be found in Section 7.1.

Operations Safety Compliance Program

The Operations Safety Compliance Program consists of exercises and evaluations of appropriate safety rules and procedures while operating on-rail vehicles on mainline, in yards, and in shop local control areas, and in performing other safety-related assignments in the District.

There are three primary departments covered by the Program: Transportation, Maintenance and Engineering, and Rolling Stock and Shops. Operations Liaison have a separate Operations Safety Compliance Program Plan (OSCP). Each primary department is required to develop an OSCP that contains 1) the safety aspects that will be covered, 2) the frequency of safety compliance exercises, 3) the format of the standard checklists that will be used, and 4) the responsibilities for the various program activities.

Additionally, CPUC G.O. 172, Rules and Regulations Governing the Use of Personal Electronic Devices by Employees of Rail Transit Agencies and Rail Fixed Guideway Systems, requires each transit agency to

develop a program to monitor compliance with the requirements governing personal electronic device use. In accordance, the monitoring and enforcement program is as follows:

- Random compliance checks shall be conducted on at least 10% of the rail transit vehicle operator population per quarter. Prior to the installation of in-cab cameras, this activity shall be performed by field observations. After in-cab cameras are installed, the monitoring may be performed by reviewing audio and video recordings.
- Operational evaluations and/or inspections shall be maintained for a minimum of three (3) years.

BART G.O. 172 zero tolerance policy on use of personal electronic devices defines the District policy and rules restricting the use of PEDs, clearly establishes the mandatory discipline associated with any violation of the policy, and details the procedures by which an employee may appeal such discipline. The current G.O. 172 zero tolerance policies for the labor unions are available from the Labor Relations Department. In addition, emergency contact procedures by which employees can be contacted in the event of a personal or family emergency were established by the Operations departments and are available at the control center having jurisdiction.

Individual departments conducting the evaluations will review the results on an annual basis to help identify weaknesses in rule compliance and provide focus for future compliance checks. Whenever this review identifies consistent non-compliance in a particular safety area, the concern will be submitted to the System Safety Department for evaluation. The System Safety Department will evaluate the concern using the hazard resolution matrix shown in Table 6-1 in Chapter 6. Unacceptable and undesirable hazards as defined by the table will be resolved to acceptable levels by the System Safety Department. Resolution of the unacceptable and undesirable hazards related to this program could take various forms, including rule revisions, additional training, changes in work methods, changes in District or Departmental policies, and discipline. All identified unacceptable hazards will be tracked through resolution, as described in Section 6.2, and coordination with the SSOA will be conducted.

7.2.2 eBART Operations

eCOR contains those rules and procedures governing the operation of eBART and are applicable to all eBART employees. Compliance with the eCOR is essential to the safe operation of the eBART system. All other manuals shall be supplementary to the eCOR and shall not conflict.

eBART General Orders are issued to modify current eCOR operating rules or to address an urgent operating requirement and shall be in effect from their effective date until canceled. All General Orders that have significant safety implications will be reviewed by the eBART Safety and Training Manager. eBART Bulletins are issued to modify departmental procedures and shall be in effect from their effective date until canceled.

The eBART COO has the authority and responsibility for development and control of the eCOR and eBART General Orders. Department Superintendents have the authority and responsibility for development and control of eBART bulletins.

eBART will utilize all applicable rules, regulations, CPUC general orders, 49 CFR Parts 200 – 299, and American Public Transportation Association standards to develop its rule set and procedures. The DMU

Engineer's and the Controller's Manual will be developed in part, using source materials from the original equipment manufacturer.

Review and Revision of Rules and Procedures

eBART annually reviews and revises, as needed, the eCOR, supplementary operations manuals, G.O.s, and bulletins to ensure that the manuals are up to date in all respects and that appropriate revisions are prepared and issued, as dictated by the results of the required annual reviews.

The eBART COO is responsible for the review, revision, control, and distribution of eCOR, G.O.s, and bulletins. The department manager of the issuing department is responsible for the review, revision, control, and distribution of supplementary departmental bulletins and manuals. Deviations from this procedure must be approved by the eBART COO.

Personnel responsibility in regards to disseminating information pertaining to manuals and bulletins include, but are not limited to, the following:

- Receiving revised pages of a manual to insert them in proper sequence;
- Distributing G.O.s and bulletins to, or otherwise made available to, personnel who could be affected; and
- Performing compliance checks to ensure employees are in possession of the required documents when performing their duties.
- The Department Manager is responsible for ensuring that all personnel under his/her jurisdiction receive revisions to manuals and applicable G.O.s and bulletins.

Revised pages to the eCOR shall indicate revision number and/or revision date and the rule changes. CPUC shall be provided with all revisions.

Process for Ensuring Rules Compliance

eBART uses three processes to evaluate compliance with appropriate safety rules: 1) DMU Engineer Evaluations Program, 2) Internal Safety and Security Audit Program, and 3) Operations Safety Compliance Program. The results of these processes are reviewed and areas requiring attention are discussed with supervision. Plans to address rules compliance issues are developed with appropriate supervision. The eBART Safety and Training Manager briefs the CSO on rules compliance results at the System Safety Department Manager meeting and as needed.

DMU Engineer Evaluations Program

The DMU Engineering Evaluations Program consists of observations performed by eBART Supervisors of Operation to determine whether or not DMU Engineers are adhering to the eBART operating rules. For each evaluation, a checklist is completed by the Supervisor and the results of the evaluation are discussed with the DMU Engineer. All observed rule violations, if any, are enforced by the applicable Asst. Superintendent. Corrective action is administered in accordance with eBART Collective Bargaining Agreement or by policy.

At least once in every three-year audit cycle, the eBART Safety and Training Manager audits the overall eBART Engineer Evaluations program. The audit includes a records review of the DMU Engineer Evaluations Program, first hand observations of DMU Engineer performance on main line and in yards, and efficiency checks to ensure adequate DMU Engineer response to unexpected events.

Operations Safety Compliance Program

There is a management procedure for eBART Operations Safety Compliance Program. The program calls for exercises and evaluations to be performed regarding the adherence to appropriate safety rules and procedures while operating on-rail vehicles on mainline, in yards, in shop tracks, and performing various other safety-related assignments at eBART.

Additionally, CPUC G.O. 172, Rules and Regulations Governing the Use of Personal Electronic Devices by Employees of Rail Transit Agencies and Rail Fixed Guideway Systems, requires each transit agency to develop a program to monitor compliance with the requirements governing personal electronic device use. In accordance, the monitoring program is as follows:

- Random compliance checks shall be conducted on at least 10 percent of the rail transit vehicle operator population per quarter.
- Operational evaluations and/or inspections shall be maintained for a minimum of three years.

eBART will review the results of rules compliance on an annual basis to help identify and provide focus for future compliance checks. Whenever this review identifies consistent non-compliance in a particular safety area, the concern will be submitted to the eBART Safety and Training Manager for evaluation. The eBART Safety and Training Manager will evaluate the concern using the hazard resolution matrix shown in Section 6.2. Unacceptable and undesirable hazards, as defined by the table, will be resolved to acceptable levels by the eBART Safety and Training Manager. Resolution of the unacceptable and undesirable hazards related to this program could take various forms, including rule revisions, additional training, changes in work methods, changes in eBART policies, and discipline. All identified unacceptable hazards will be track through resolution as described in Section 6.

7.2.3 OAC Operations

The Operator maintains safety-related rules and procedures within the O&M Manual, rulebooks, and SOPs. Procedures having an impact on safety must be strictly followed by Operator personnel to the extent possible. The Operator annually reviews its safety-related rules and procedures for their effectiveness and revises to ensure they are updated as necessary based on previous occurrences of incidents, near-misses, and safety concerns noted by personnel. The Operator conducts testing and observations to ensure compliance to rules and procedures having a safety impact.

Rules and Procedures Subject to Review

As part of the annual review, the Operator monitors changes to rules and regulations having a safety impact that are pertinent to the operation of OAC. Such monitoring includes a review of new sections or revisions to relevant state regulations, CPUC G.O.s, Cal/OSHA requirements, Automated People Mover standards (ASCE 21 series) and other relevant sources (FTA, TSA, etc.). When this review identifies any necessary changes to the safety rules and procedures, the revisions will be incorporated into the necessary documents and may be subject to District review and approval.

Implementation of Rules and Procedures

The Operator's training plan outlines the Operator's policies to train employees to safely perform their duties. The Operator provides initial and refresher training to all personnel, which includes evaluation of personnel understanding of rules compliance and procedures that may include written and practical testing. Training is perpetual and the Operator's training plan should be referenced for more specific information. Training is monitored by the eBART/OAC Safety and Training Manager, who reports to the

CSO. If a significant failure occurs, the eBART/OAC Safety and Training Manager is accountable for reporting it to the CSO.

7.2.4 BART Facilities and Equipment

Facilities and Equipment Subject to Inspection

The System Safety Department staff conducts safety inspections of passenger stations, maintenance and storage facilities, and administrative facilities. Each station is inspected at least once every twelve months within a calendar year. All shops/maintenance facilities and office facilities are inspected at least once every twelve months within a calendar year.

All inspections are primarily focused on the identifications of Cal/OSHA-type violations. As an aid to facilitate an inspection, the assigned System Safety staff member may use the Station Inspection/Audit Checklist to note potential and/or actual unsafe conditions during inspections of stations.

These inspections provide safety data which is used to inform staff about the State of Good Repair status regarding the infrastructure.

Regular Inspection and Testing

Passenger Stations

Each station is inspected at least once every twelve months within a calendar year. As an aid to facilitate an inspection, the assigned System Safety staff member may use the Station Inspection/Audit Checklist to note potential and/or actual unsafe conditions including, but not limited to:

- Combustible/Flammable/Hazardous Materials
- Debris/Trash
- Ventilation of Floor Scrubbers and Battery Rooms
- Fire Hose Cabinet Damage
- Fire Extinguishers
- Trip/Fall Hazards
- Non-Skid Needs
- Emergency Exit Doors Panic Hardware/Alarm Operation
- Lighting
- Missing Electrical Outlet Covers
- Annunciator Lamps Operation
- Elevator Phone Operation
- Elevator Controls Operation
- Keyed PA Phone Operation
- PABX Operation
- Potholes/Uneven Walking Surfaces

Train Control Rooms, Electrical Equipment Rooms, Elevator Equipment Rooms, Maintenance and Storage Facilities

All Train Control rooms, Electrical Equipment rooms, Elevator Equipment rooms, shops, and maintenance facilities are inspected at least once every twelve months within a calendar year. All assigned safety personnel/inspector may use a standardized Inspection Report to note potential and/or

actual unsafe conditions during inspections of maintenance and storage facilities. These include but are not limited to the following:

- Electrical Apparatus
    - Proper working conditions of equipment, including proper grounding and covers of electrical outlets/electrical equipment
- Emergency Equipment
    - Access to emergency fire extinguishers
    - Tags on emergency fire extinguishers
- Buildings
    - Proper lighting levels
    - Designated exits by approved signage
    - Portable ladders equipped with safety equipment
    - Adequate clearance maintained around electrical equipment
    - Proper storage of oily rags and waste containers
    - Properly maintained emergency eye wash facilities
    - Proper protective clothing and hats worn in work pit areas and other designated “hard hat” areas
    - Good general housekeeping
- Hazardous Materials Management
    - Proper labeling of “hazardous waste”
    - Drums of all products clearly marked/labeled
- Storage
    - Gas cylinders properly secured and stored
    - Parts, chemicals, and equipment stored properly
    - Proper clearance for fire lanes and exits
    - Storage area kept clear of dangerous depressions and tripping hazards
    - Materials not specifically associated with these facilities are not to be stored in controlled area, such as train control rooms, communications rooms, electrical rooms, or within traction power substations.
- Respirators
    - Respirators properly stored
    - Inspection records of respirators are kept current

Coordination with Safety Risk and Hazard Management Process

Potential hazards identified during these safety inspections are documented through resolution. The results of the facility inspections are sent to the department management responsible for the maintenance of the facility with a request for a reply on the status of the required corrective action. The cover letter requests the date of abatement, or schedule of abatement, of the identified hazards. Those hazards that are deemed to present an imminent danger are also immediately phoned-in and/or emailed to the department management responsible for the maintenance of said facility.

7.2.5 eBART Facilities & Equipment

Facilities and Equipment Subject to Inspections

System Safety Monitoring will be carried out on a daily basis by eBART O&M personnel. The eBART Safety and Training Manager will conduct safety inspections of passenger stations, maintenance and storage facilities, and the right-of-way. Each station and the maintenance facility will be inspected at least once every six months within a calendar year. These inspections are conducted to identify conditions that may present a hazard to the patrons and employees using these facilities. These inspections are primarily focused on the identification of Cal/OSHA-type violations using standardized check sheets.

In addition, eBART personnel are responsible for inspecting the eBART facilities and related equipment monthly to identify safety concerns. These inspections will be recorded, along with corrective actions which will be tracked to closure in the Maintenance Management Information System (MMIS) called Maximo or via paper documentation. Maximo will track all system preventive maintenance and inspections based on time, mileage or cycle counts. The inspection checklist from Maximo will identify the items to be inspected. The checklist will include the following items:

- Date of inspection
- Name of facility and/or equipment inspected
- Items to be inspected
- Record of observed deficiencies
- Follow-up Work Order, if needed
- Name of employee performing the inspection and signature or initial of inspector
- Name of manager reviewing, if needed

Findings may be corrected on the spot or be addressed through documentation and assignment of corrective action work orders in Maximo. When equipment is found to be out of tolerance, the system or subsystem will be tagged and taken out of service until appropriate remedial action can be taken. The equipment under investigation will only be declared “fit for service” following successful functional/safety acceptance testing.

Coordination with Hazard Management Process

Potential hazards identified during the facilities inspections are documented through resolution. Any hazard discovered during the facility inspections are discussed with the department management responsible for the maintenance of the respective facility. Those hazards that are deemed to present an imminent danger are also immediately phoned-in to the department management responsible for the maintenance of that facility. For each safety-related finding, consideration will be given to the Hazard Management Process to assist in addressing the identified hazard. The eBART Safety and Training Manager will review all findings and send notification to the CSO of these findings. The Manager will then track corrective actions until closure and a notification of closure sent to the CSO.

7.2.6 OAC Facilities & Equipment

The Operator is responsible for regularly inspecting the OAC facilities and equipment to identify safety concerns. These inspections are part of the preventive maintenance program. Findings of the preventive maintenance activities are recorded, along with corrective action plans which are tracked to closure in the Maintenance Management Information System (MMIS).

Identification of Facilities and Equipment to be Inspected

Facilities and equipment regularly inspected or tested for safety include:

- Emergency exits
- Fire extinguishers
- Fire management systems
- Fire hazards
- Building and facility security
- Fall arrest equipment
- Blue Light Stations
- Vehicle braking
- Station doors
- Vehicle doors
- Calibrated tools
- Condition of safety-relevant vehicle equipment

Techniques Used to Conduct Inspections

Inspections are carried out in a variety of ways. Some inspections are visuals. Each shift for each station will visually check for fire hazards and clear emergency exits. Others involve actual testing of the closing force of doors or verifying function of the Blue Light Stations. The specific steps to be carried out for each inspection are listed in the O&M Manual.

MMIS

A Maintenance Management and Information System (MMIS) tracks all system preventive maintenance and inspections based on time, mileage or cycle counts. The inspection checklist from the MMIS identifies the items to be inspected and provides a place for the inspector to indicate pass/fail criteria. It also provides a place to record any deficiencies and corrective actions that need to be taken. The checklist includes the following items:

- Date of inspection
- Name of facility and/or equipment inspected
- Properties to be inspected
- Punch list of outstanding items/ongoing maintenance monitoring
- Pass/fail criteria
- Record of observed deficiencies
- Printed name and signature or initial of inspector
- Printed name and signature or initial of manager

Results of Safety Inspections

Findings may be corrected on the spot or documented or a follow-up Corrective Work Order is created. When equipment is found to be out of tolerance, the system or subsystem is taken out of service until appropriate remedial action can be taken. The equipment under investigation will only be declared “Fit for Service” following successful functional/safety acceptance testing. For each finding, consideration should be given to the Hazard Management Process to accept, reject or mitigate the findings.

If maintenance actions or inspections of these (or any other safety-relevant) elements identify an unacceptable hazard, the Hazard Management Process identified in Section 6 shall be used to eliminate or mitigate the hazard.

The Operator provides record of maintenance to the District for review and approval on a monthly basis.

7.3 Maintenance Audits and Inspections

7.3.1 BART

Systems and Facilities Subject to Maintenance Program

Track Inspection and Maintenance: The Track/Wayside/Grounds/Structures Division of the Maintenance and Engineering Department is responsible for the inspection and maintenance of the District's trackwork. The frequency and scope of inspections are detailed in the Track Safety and Maintenance Standards.

The following table outlines the track inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.1: BART Track Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Mainline track	Weekly	Visually inspected by hi-rail vehicle and on-train inspections	Track Standards, Section S7.0 – Inspections
2. Mainline and yard turnouts	Monthly	Visually inspected on foot	Track Standards, Section S7.0
3. All mainline turnouts and crossing diamonds	Quarterly	Dimensionally inspected	Track Standards, Section S7.0
4. Track involved in a derailment and/or run-through switch incident	As soon as possible following the incident	Special inspections	Track Standards M7.11
5. Mainline track (including turnouts)	Twice Yearly	Geometry car inspections	Track Standards, Section S7.0
6. Mainline track (including turnouts)	Twice Yearly	Internal rail defects inspections (inspected by ultrasonic examination or another non-destructive test method)	Track Standards, Section S7.0

Train Control Inspections and Maintenance: The Train Control Division of the Maintenance and Engineering Department is responsible for the inspection and maintenance of the District's train control system. The frequency and scope of inspections and the maintenance procedures are detailed in the Train Control Maintenance Manual available from the District's Chief Engineer and in the Maximo database available at Systems Maintenance.

The following table outlines the train control inspection activities, frequencies, inspection methods, and referenced criteria used.

Table 7.2: BART Train Control Inspection Frequencies

Inspection Activity	Frequency	Inspection Method	Referenced Criteria
1. Mainline and yard track switches	Monthly (Mainline) Every 2 Months (Yard)	Visual inspection, obstruction tests	Models GM4000A and 55G Switch PM Procedure
2. Vane relays, vital relays	Every 2 Years (Vane) Every 4 Years (Vital)	Visual inspection, pick and drop tests	Vane Relay and Vital Relay PM Procedures
3. Vital timer relays	Every Year	Visual inspection, check timer duration	Vital Relay Timer PM Procedure
4. Audio frequency track circuits	Every 2 Years	Visual inspection, check track circuit sensitivity and settings	AF Track Circuit PM Procedure
5. Power frequency track circuits	Every 2 Years	Visual inspection, check track circuit sensitivity and settings	PF Track Circuit PM Procedure
6. Interlocking	Every 2 Years	Visual inspection, functional checks	Interlocking PM Procedure
7. Train control room	Every 6 Months	Visual inspection, power supply levels and isolation	Train Control Room PM Procedure
8. New station mux	Every 2 Years	Visual inspection, power supply levels and isolation	New Station Mux PM Procedure

Validation System Inspection and Maintenance: The Traction Power Division of the Maintenance and Engineering Department is responsible for the inspection and maintenance of the District's ventilation system. The frequency and scope of inspections and the maintenance procedures are detailed in Mechanical Maintenance Procedures, Book 4 and Electrical Maintenance Procedures, Book 31.

The following table outlines the ventilation system inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.3: BART Ventilation System Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Line fan and damper electrical PM	Once Every 3 Months	Visual inspection and operation. Check elec. connections and contacts, room condition	Line Vent Fans PM Procedure Book 4, Vol 1
2. Line fan and damper electrical PM	Annual PM	Same as above plus amperage motor readings and Meggering motor leads	Line Vent Fans PM Procedure Book 4, Vol 1
3. Line fan and damper mechanical PM	Once Every 3 Months and Annual	Visual inspection and operational check, torque blades, lube motor and damper linkage	Line Vent Fans PM Procedure Book 4, Vol 1

Communication Equipment Inspections and Maintenance: The Automatic Fare Collection/Communications/Computers Division of the Maintenance and Engineering Department is responsible for the inspection and maintenance of the District's communication equipment. The frequency and scope of inspections and the maintenance procedures are detailed in the Maximo database.

The following table outlines the communication equipment inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.4: BART Communications Equipment Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Trunked Radio	Annual	Visual inspection, measure system parameters, function tests	Underground Radio System PM Procedure
2. Emergency Telephones	Once Every 3 Months	Visual inspection functional test	Wayside ET and Special Phone Inspection Procedures
3. Emergency Communications	60 Days or Once Every 2 Months	Visual inspection, functional tests, backup battery checks	Wayside Communications, Vertical Fire Phone, and Fire Radio Call Box Procedures
4. SCADA	Annual	Visual inspection, check power supplies, system check	SCADA Inspection Procedure
5. CCTV – Critical	Semi-Annual	Visual inspection, cleaning, functional check	CCTV Inspection and Maintenance Procedure
6. BART.NET	90 Days	BART.NET System Testing check	BART.NET System Testing Procedure
7. New RTACs and other PLCs installed with new TPSS systems in A75 and C88	Annual		

Revenue Vehicle Inspections and Maintenance: The Rolling Stock and Shops Department is responsible for the inspection and maintenance of the District's revenue vehicles. The Preventive Maintenance Program for Transit Vehicles is referenced in Book 86, Volume 14: A2/B2 – Car Preventive Maintenance Requirements and Book 50, Volume 14: C1/C2 – Car Preventive Maintenance Matrix. For each car, completed PM check sheets, Maintenance Discrepancy/Correction sheets (D and C sheets) and Vehicle Workbooks are available to determine whether or not the required PMs are being performed during the required time limits, and if the required inspection and maintenance activities are signed off appropriately by the responsible maintenance workers, inspection workers, and Foreworkers. The

frequency and scope of inspections and the preventive maintenance activities are detailed in the applicable PM Procedures outlined from Books 42 (Automatic Train Control), 50, and 86.

The following table outlines the revenue vehicle inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.5: BART Revenue Vehicle Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. C1/C2 Car Vehicle Preventive Maintenance and Inspection	Every 600 Operating Hours	Replacement of consumables (oil, grease, filters), Visual, Functional Checks, Measure for condemning limits	Book 50, Volume 14
2. A2/B2 Car Vehicle Preventive Maintenance and Inspection	Every 800 Operating Hours	Replacement of consumables (oil, grease, filters), Visual, Functional Checks, Measure for condemning limits	Book 86, Volume 14
3. D Car Vehicle Preventive Maintenance and Inspection	Every 900 Operating Hours	Replacement of consumables (oil, grease, filters), Visual, Functional Checks, Measure for condemning limits	RS&S Kiosk - D/E Car Intermediate Manuals
4. E Car Vehicle Preventive Maintenance and Inspection	Every 900 Operating Hours	Replacement of consumables (oil, grease, filters), Visual, Functional Checks, Measure for condemning limits	RS&S Kiosk - D/E Car Intermediate Manuals

Fence Inspection: The Track/Wayside/Grounds/Structures Division is responsible for the monthly inspection, and repairs of mainline fencing. Records are maintained in the Way and Facilities Scheduled Right of Way Barrier Inspection Report, which also notes defects and corrected repairs.

The following table outlines the fence inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.6: BART Fence Inspection Frequency

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Fence inspection	Monthly	Visual Observation	CPUC G.O. 95

Resolution of Audit/Inspection Findings

Safety-critical systems and facilities are inspected on a regular basis to identify existing hazards and ensure that such hazards are mitigated in a timely manner. BART inspection and repair manuals are available to the personnel responsible in performing these duties. The inspection and maintenance manuals are under the control of the Documentation Division, which is responsible for the distribution of such documents and their revisions. Only replacement parts that meet BART specifications may be used in the repair of safety-critical systems.

Safety critical systems, such as track, structures, train control, transit vehicles, tunnel ventilation and flood control, elevators, escalators, and communications are inspected/tested and/or serviced on a scheduled, periodic basis. Should such systems be found in a failed or out-of-tolerance condition, in such a manner that would present a hazard, applicable operations will be restricted to maintain safety until such time an appropriate remedial action has been completed. Equipment found to be in a failed or out-of-tolerance condition are recorded and tracked by the responsible maintenance department. These discrepancies are not to be closed out until repairs are completed. In the case of transit vehicle maintenance, should a vehicle not receive the prescribed preventive maintenance within the required maintenance schedule, the vehicle is to be withheld from revenue service.

The System Safety Department performs Internal Safety and Security Audits of maintenance activities for safety critical systems. These audits focus on adherence to schedule, application of standards and procedures, and recordkeeping.

Checklists

All assigned safety personnel/inspectors may use a written checklist to document the maintenance audits.

7.3.2 eBART

Systems and Facilities Subject to Maintenance Program

eBART personnel will inspect all applicable eBART facilities and equipment to identify safety concerns. Inspection procedures are performed in compliance with applicable CPUC, FTA, FRA regulations and APTA standards for transit vehicle inspections, maintenance, repairs, and regulatory documentation. These inspections will be part of the preventive maintenance program. Findings of the preventive maintenance activities will be recorded, along with the corrective actions, which will be tracked to closure in the MMIS called Maximo.

Maximo will track all system preventive maintenance and inspections based on time, mileage or cycle counts. The inspection checklist from Maximo will identify the items to be inspected. The checklist will include the following items:

- Date of inspection
- Name of facility and/or equipment inspected
- Items to be inspected
- Record of observed deficiencies
- Follow-up Work Order, if needed
- Employee number of the person performing the work
- Employee number of the reviewing manager

Findings discovered during the course of the inspection are addressed through documentation and assignment of corrective action work orders in Maximo. Any findings that are corrected immediately will be addressed and noted in Maximo. When equipment is found to be out of tolerance, the system or subsystem will be tagged and taken out of service until appropriate remedial action can be taken. The equipment will only be declared “fit for service” following successful functional/safety acceptance testing. For each safety-related defect, consideration should be given to the Hazard Management Process to accept, reject or mitigate the findings. Should a vehicle not receive the prescribed preventive

maintenance within the required maintenance schedule, the vehicle is to be withheld from revenue service.

Track Inspection and Maintenance: eBART Systems Department is responsible for the inspection and maintenance of the eBART track and structures. The frequency and scope of inspections are detailed in the 49 CFR Part 213.

The following table outlines the track inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.7: eBART Track Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Mainline Track	Twice Weekly with at least one calendar day between inspections	Visually inspected by hi-rail vehicle and/or on foot	49 CFR 213
2. Yard, transfer, and tail tracks	Monthly with at least 20 calendar days between inspections	Visually inspected by hi-rail vehicle and/or on foot	49 CFR 213
3. All mainline and yard turnouts	Monthly with at least 20 calendar days between inspections	Visually and dimensionally inspected on foot	49 CFR 213
4. Track involved in fire, flood, severe storm or another occurrence that might have damaged track structure	As soon as possible after the occurrence and, if possible, before the operation of any train over the track	Special inspections	49 CFR 213
5. Internal rail inspection mainline track (including turnouts)	Annually	Ultrasonic examination or another non-destructive test method	49 CFR 213

Signaling System Inspections and Maintenance: The Systems Department is responsible for the inspection and maintenance of the eBART signaling system. The frequency and scope of inspections and the maintenance procedures are available from the Superintendent of Systems Maintenance.

The following table outlines the signaling system inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table7.8: eBART Signaling System Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Mainline Switch Machines	Monthly	Visual inspection, obstruction tests	Model GM4000A Switch Machine PM Procedure
2. Yard Switch Machines	Every 3 Months	Visual inspection, obstruction tests	Model 6 Switch Machine PM Procedure
3. Vital Relays	Every 4 Years	Visual inspection, pick and drop tests	Vital Signal Relay PM Procedure
4. Track Circuits	Every 2 Years	Visual inspection, check track circuit sensitivity and settings	Track Circuit PM Procedure
5. Microprocessor-Based Interlocking	Every 2 Years	Visual inspection, functional checks	ElectroLogIXS Interlocking PM Procedure
6. Signal House	Every 6 Months	Visual inspection, power supply levels and ground isolation	Signal House PM Procedure

Communication Equipment Inspections and Maintenance: The Systems Department is responsible for the inspection and maintenance of the eBART communication equipment. The frequency and scope of inspections and the maintenance procedures are available from the Superintendent of Systems.

The following table outlines the communication equipment inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.9: eBART Communications Equipment Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Radio Components (e.g., hand-held, mobile, and desktop radios)	As needed (due to frequency of use and obviousness of failure)	Visual inspection, functional tests	Radio System Maintenance Procedures*
2. Emergency Telephones/Emergency Communications	Every 3 Months	Visual inspection, functional tests	ETEL and CTEL Inspection Procedure
3. SCADA and CTC	Every 6 Months	Visual inspection, check power supplies, system check	CTC and SCADA Inspection Procedure

4. CCTV	Every 6 Months	Visual inspection, cleaning, functional check	CCTV Inspection and Maintenance Procedure

*eBART relies on BART to perform inspections of the radio backbone and repeater sites. All components/end-units are inspected by eBART personnel

Revenue Vehicle Inspections and Maintenance: The Vehicle Maintenance Department is responsible for the inspection and maintenance of the eBART revenue vehicles. The Preventive Maintenance Program is outlined in the original equipment manufacturer (OEM) maintenance manual. Maximo is available to determine whether or not the required preventive maintenance is being performed during the required time limits and if the required inspection and maintenance activities are signed off appropriately by the responsible maintenance workers, inspection workers, and maintenance assistant superintendents.

The following table outlines the revenue vehicle inspection activities, frequencies, inspection methods, and the referenced criteria used.

Table 7.10: eBART Revenue Vehicle Inspection Frequencies

Inspection Activity	Frequency	Inspection Methods	Referenced Criteria
1. Vehicle preventive maintenance and inspection	Calendar Days 30, 60, 90, 180, 360	Replacement of consumables (oil, grease, filters), visual, functional checks, measure for condemning limits	Stadler, manuals, Part 5: B2.8 Preventive Maintenance
2. Vehicle component overhaul	Years/Miles 3/273k 5/240k 6/503k 7/622k	Replacement or overhaul of components, visual, functional checks, measure for condemning limits	Stadler, manuals, Part 5: B2.8.8 Overhaul – R1

Facilities and Equipment Inspections

The eBART Facility Plan establishes a schedule of periodic systems and equipment inspections. Some equipment inspections are stored in Maximo and others are recorded with paper documentation. These items include, but are not necessarily limited to, the following:

- Fueling Station – Vehicle Maintenance
- Cranes – Vehicle Maintenance
- Fall Protection Equipment and Supports – Vehicle Maintenance
- Vehicle Lifts – Vehicle Maintenance
- Roll-up Doors – Vehicle Maintenance
- Air Compressors – Vehicle Maintenance (eMF), Systems (Stations)
- HVAC/Heaters – Vehicle Maintenance
- Fire Protection Equipment – Vehicle Maintenance

- Elevators and Escalators – Vehicle Maintenance (eMF) and Systems (Stations) via contractor
- Communication Equipment - Systems
- Drain and Flood Control Systems - Systems
- Structures – Vehicle Maintenance (eMF) Systems (Bridges, Tunnels, Stations, Signal Houses, and Parking Lots,)
- Road Vehicles – Trucks, SUVs, Forklifts, Utility Carts, Lifts

Resolution of Audit/Inspection Findings

Safety-critical systems and facilities are inspected on a regular basis to identify existing hazards and ensure that such hazards are mitigated in a timely manner. eBART inspection and repair manuals are available to the personnel responsible in performing these duties. Only replacement parts that meet eBART/OEM's specifications may be used in the repair of safety-critical systems.

Safety critical systems, such as track, structures, train control, transit vehicles, flood control, elevators, escalators, and communications are inspected/tested and/or serviced on a scheduled, periodic basis. Should such systems be found in a failed or to be in an out of tolerance condition, in such a manner that would present a hazard, applicable operations will be restricted to maintain safety until such time an appropriate remedial action has been completed. Equipment found to be in a failed or out of tolerance condition are recorded and tracked by the responsible maintenance department. These discrepancies are not to be closed out until repairs are completed.

The eBART Safety and Training Manager performs Internal Safety and Security Audits of maintenance activities for safety critical systems. These audits focus on adherence to schedule, application of standards and procedures, and recordkeeping.

7.3.3 OAC

The Operator's Operations and Maintenance manuals provide instructions on preventive maintenance, troubleshooting, and corrective maintenance and are available to all Operator personnel. All related maintenance actions are documented within the Operator's Maintenance Management Information System (MMIS). The MMIS covers maintenance actions for the entire OAC system including, but not limited to, the following safety-related system/subsystem elements:

- Station and guideway structures
- Vehicle equipment
- Building systems (mechanical, electrical, plumbing)
- Means of egress (doors and gates within stations, trains, guideway)
- Emergency equipment (CCTV, public address, emergency telephone systems, radio systems)
- Automated train control system
- Life safety and alarm systems
- Fire suppression systems

If maintenance actions or inspections of these (or any other safety-relevant) elements identify an unacceptable hazard, the Hazard Management Process identified in Section 6 shall be used to eliminate or mitigate the hazard.

System safety monitoring is carried out on a day-to-day basis by O&M personnel and management. Safety-related inspections and maintenance of the various systems and subsystems of OAC shall be

carried out according to defined intervals and/or based on the mileage reading of the trains. The maintenance and inspection schedule is established to ensure safety-critical elements of the system are evaluated at proper intervals based on the Hazard Resolution Process. The maintenance and inspection intervals are defined in the OAC O&M manuals. Scheduled inspections and maintenance are performed using written check lists. In addition, maintenance audits are performed by management according to prescribed checklists.

All maintenance actions are performed and recorded into the MMIS by the Operator's operations and maintenance personnel. All maintenance records and reports generated by the MMIS shall be provided to the District as part of the Operator's monthly reporting and are available for CPUC review.

The System Safety Coordinator, or his/her designee, shall also carry out periodic safety audits/inspections monthly. The findings of the safety audit/inspection are recorded in the minutes of the monthly operation status meetings.

7.4 Event Reporting and Investigation

7.4.1 BART and eBART

This chapter describes the process used by BART to conduct accident/incident investigations, the criteria for accident/incident notification, and the requirement to notify the appropriate external agencies, including the CPUC, Cal/OSHA, FTA, and the National Transportation Safety Board (NTSB). The System Safety Department is responsible for investigating all accidents/incidents with the exception of those under the jurisdiction of the BART Police Department. This chapter includes the District's accident investigation procedure as required by CPUC G.O. 164, Section 8.2.

Investigation reports for a major accident/incident will be forwarded through the chain of command to the General Manager and the Assistant General Manager, Operations. It is the intent of all BART, eBART, and OAC accident/incident reports to accurately identify the most probable cause of an accident/incident and make recommendations for corrective action to prevent a reoccurrence of similar accidents/incidents. The System Safety Department will track recommendations for corrective action through completion. For eBART, the Safety and Training manager will track recommendations for corrective action through completion. All BART and eBART investigation reports are tracked and stored on Maximo.

Internal Notification Requirements

The Operations Control Center or Yard Tower Control, depending upon the location in which the incident occurs, initiates internal notification of an emergency or accident/incident. All BART personnel shall report accidents/incidents or rules and procedures violations that cause or could cause damage or injury to the Control Center with jurisdiction, a supervisor or to BART Police. Both System Safety and BART Police are part of the Management Notification List.

All eBART accidents and incidents will be immediately reported to the eBART Control Center. The control center will log the event in the controller's log and will notify the following employees of any CPUC or FTA reportable accident, incident or injury within 30 minutes:

- eBART Safety and Training Manager

- Chief Operating Officer
- Department Manager
- BART Chief Communications Officer (PIO), if necessary

The eBART Safety and Training Manager will notify the Chief Safety Officer and the eBART COO will notify the BART Assistant General Manager, Operations.

External Notification Procedure

Accident Notification: The System Safety Department is responsible for notifying the CPUC, its state safety oversight agency, NTSB, and FTA of BART safety-related accidents meeting the immediate reporting requirements of CPUC G.O. 164, Section 7.2. For safety events occurring on eBART and OAC, the eBART Safety and Training Manager, or his/her designee, will contact CPUC. Investigations of CPUC-reportable incidents conducted by the District are performed on behalf of the CPUC in accordance with the direction provided in G.O. 164, Sections 8.1 and 8.3.

Immediate Accident Reporting Requirement Notification Methods:

- CPUC
  - Colleen Sullivan colleen.sullivan@cpuc.ca.gov; steven.espinal@cpuc.ca.gov (Proxy)
    Office: (415) 703-2807 or Cell: (415) 640-9527
    CPUC Online Reporting Portal
    (or other personnel, should reporting structure change)
- FTA
  - Contact the U.S. Department of Transportation Operations Center (TOC) within two hours of a reportable accident, by email (recommended) TOC-01@dot.gov or phone (202) 366-1863**.**

The reportable criteria, thresholds, and timelines for notification are listed below. Accidents meeting these thresholds must be reported to the CPUC and FTA concurrently and immediately (within 2 hours), and are listed as follows:

Immediately Reportable Accidents, excluding illness/natural causes or resulting from crimes not related to collisions with a rail transit vehicle, include the following:

- A fatality occurring at the scene or within 30 days following the accident.
- One or more persons suffering any of the following serious injuries:
  - Requires hospitalization for more than 48 hours, within seven days from date of injury
  - Results in fracture of any bone, except simple fractures of fingers, toes or nose
  - Causes severe hemorrhages, nerve, muscle or tendon damage
  - Involves any internal organ
  - Involves second- or third-degree burns or burns affecting five percent of the body surface
- A collision involving a rail transit vehicle and any other vehicle, object or individual
- A derailment of any rail transit vehicle at any location, at any time, whatever the cause
- An evacuation due to life safety reasons
- A runaway train

The Principal Investigator, the Chief Safety Officer (CSO), or his/her designee, shall be notified immediately of accidents that could meet the thresholds above by the Operations Control Center.

In accordance with 49 CFR Part 840, the **NTSB** should be notified through the National Response Center (Duty Officer, (800) 424-0201) of any accidents meeting NTSB notification criteria. NTSB reporting criteria is as follows:

Within 2 Hours

- A passenger or employee fatality, or a serious injury to two or more crew members or passengers requiring admission to a hospital; or
- The emergency evacuation of a train.

Within 4 Hours

- Damage estimated at $150,000 or more in repairs (or current replacement cost) to the railroad or non-railroad property; or
- Damage of $25,000 or more to a passenger train including railroad and non-railroad property.

In addition to the CPUC thresholds above, the following employee events will be reported to Cal/OSHA and investigated by the System Safety Department:

Within 8 Hours

- Death
- Amputation
- Loss of an eye
- Inpatient hospitalization
- Automotive accidents occurring in construction zones

Within 24 Hours

- Injury or illness resulting in hospitalization for other than observation, for more than 24 hours.

In addition to the CPUC thresholds above, which already include fatalities, the following patron events will be investigated by the System Safety Department:

- Injuries suspected to have been caused by equipment malfunction or a breach of a facility standard
- Loss of any body part
- Injury expected to result in hospitalization for reasons other than observation and for more than 24 hours

External Agencies:

The following external agencies may be involved in the mitigation and investigation of accidents/incidents depending on the type, severity, and location. Where an accident/incident occurs in a joint jurisdiction area with another agency (i.e., MUNI, VTA, SFIA, etc.), System Safety will work with the other agency and share information as appropriate.

California Public Utilities Commission: The CPUC is the agency responsible for state safety oversight of rail fixed guideway systems in California.

National Transportation Safety Board: The National Transportation Safety Board (NTSB) has the authority to investigate any transportation accident. NTSB investigators, upon showing proper credentials, are authorized access to any property where an accident has occurred or where wreckage is located to conduct an investigation. The NTSB investigation will have priority over, but not preclude, investigations being conducted by other agencies.

Federal Transit Administration: The Federal Transit Administration (FTA) is the federal agency with authority over fixed rail guideway systems. 49 CFR Parts 670,672, 673, and 674 establish requirements for state safety oversight of fixed rail guideway systems. The state safety oversight agency in California is the CPUC. Additionally, the FTA maintains the National Transit Database (NTD). Transit agencies are required to report transit safety and security data to NTD.

Division of Industrial Safety – California Occupational Safety and Health Act (Cal/OSHA): The System Safety Department inspects all District employee work locations to identify conditions of non-compliance with the California Administrative Code, Title 8 (Cal/OSHA). Where an instance of non-compliance is identified, the System Safety Department notifies the responsible manager of the discrepant work location. The System Safety Department subsequently rechecks the location to ensure that the discrepant condition has been mitigated in a timely manner. The System Safety Department also coordinates all Cal/OSHA inspections and visits.

For BART, the System Safety Department maintains the OSHA 300, *Log of Work-Related Injuries and Illnesses*, and OSHA Form 300A, *Summary of Occupational Injuries and Illnesses*. The eBART Safety and Training Manager maintains these forms for eBART. These forms are used to record and classify occupational injuries and illnesses. The summary is posted in each establishment no later than February 1, of each year, and remains in place until May 1, as required by law.

All serious employment-related injuries or illnesses are reported to the district office in accordance with the directives of the California Division of Occupation Safety and Health (Cal/OSHA).

Local Response Agencies: The local response agencies include emergency medical service, fire department, police and California Highway Patrol. Bay Area transit agencies may be asked to assist during emergencies by providing alternate means of transportation. In District emergency response exercises, the System Safety Department and Fire Life Safety Department coordinate participation by these agencies. The District coordinates with the local response agencies is as follows:

- Request for Emergency Medical Response (ambulance): Typically, requests are made by the BART Police Dispatch Center or BART Police Watch Commander. In shops, requests for ambulance services are made by dialing 911.
- Request for Fire Department: Typically, requests are made by the Operations Control Center or the BART Police Department to the responsible local fire department. In shops, requests for fire departments are made by dialing 911.
- Request for Local Police Department or Highway Patrol: Requests are made by the BART Police Department.
- Request for Coroner: Requests are made by the BART Police Department.

- Request to establish Bus Bridges: Requests are made by the Operations Control Center.

Office of Emergency Services (OES): An Office of Emergency Services is established for the State of California, with a regional office located in Contra Costa County. A county Office of Emergency Services is established within the counties of Alameda, Contra Costa, San Mateo, and San Francisco. These offices coordinate activities in terms of emergencies or disasters. The Manager of the Emergency Preparedness Program makes preparations for large-scale disasters in coordination with OES as well with all impacted Emergency Operations Centers.

Accident/Incident Reporting

It is the responsibility of each BART department manager to ensure prompt reporting of all accidents and injuries on District property to the System Safety Department, who is also responsible for compiling and analyzing all reported accidents and incidents.

It is the responsibility of each eBART department manager to ensure prompt reporting of all accidents and injuries on District property or equipment to the eBART Control Center who make all required internal notifications to include the eBART Safety and Training Manager.

Patron Injury:	Patrons claiming injury on District property report such incidents to BART personnel (typically a Transportation Supervisor or Station Agent). The Supervisor or Station Agent will then fill out an Accident/Injury Report Form, which is then distributed, to the Insurance and System Safety Departments. The Manager of the Employee/Patron Safety Division within the System Safety Department is responsible for investigating serious injuries arising from unusual circumstances, or where a significant number of injuries of the same nature have occurred. For eBART, injury claims are reported to eBART personnel, after which a Supervisor of Operations fills out an Accident/Injury Report Form, which is then distributed to the Insurance and eBART Safety and Training Manager. The eBART Safety and Training Manager is responsible for the final accident/incident report.
Unusual Occurrences:	Each unusual occurrence, such as an accident, disturbance, irregularity, or rule/procedure violation which might affect service, or involve or threaten injury/damage, require that an Unusual Occurrence Report be prepared. Unusual Occurrence Reports (UORs) shall be completed by the employee. The completed UOR is submitted to the employee's immediate supervisor and department Manager. All safety related UORs are forwarded to System Safety for review, follow-up and investigation where warranted. The eBART Safety and Training Manager is forwarded UORs occurring on eBART and OAC.
Employee Injury/Illness:	Each employee work-related illness or injury is reported by the Supervision to the Human Resources and System Safety Departments using the Supervisor's Report of Injury/Illness Form. Severe injury incidents are investigated by the System Safety Department.

For eBART, employee work-related illness or injury is reported to the Control Center. A Supervision of Operations will complete Supervisor's Report of Injury/Illness Form (Form #0030) and provide it to the Human Resources and eBART Safety and Training Managers. The eBART Safety and Training Manager investigates severe injury incidents.

Employee Safety Complaint Investigation: Potential safety hazards in an employee's work area are reported to his/her immediate supervisor or via the methods outlined on the SMS Safety Card (see Appendix D), the latter of which employees receive training. If the employee is not satisfied with the response from the supervisor, he/she may complete a BART Safety Notice (BSN) and anonymously, if he/she chooses. The completed form is given to the supervisor for comment and a copy, with comments, sent to the System Safety Department, or the eBART Safety and Training Manager for eBART and OAC-related complaints. The Manager of the Employee/Patron Safety Division within the System Safety Department investigates all such BART notices and the eBART Training and Safety Manager investigates those for eBART and OAC. Each investigation is undertaken to verify whether a safety hazard exists and to ensure that necessary corrective action has been implemented.

All active BART Safety Notices are discussed at the following regularly scheduled meeting of the Joint Union/Management Health and Safety Committee. If an employee feels that an imminent safety hazard exists and is not being adequately corrected, he/she may contact the System Safety Department for immediate investigation.

Roadway Worker Near-Miss Reporting: Employees are encouraged to report near-miss incidents related to the safety of individuals located in (or adjacent to) the right of way, specifically those involving:

1. The movement of all on-rail vehicles on mainline, yard, local control areas, including shop tracks.
2. The third rail power system associated with propulsion of revenue service vehicles.

The intent is to become knowledgeable of unsafe acts that would otherwise go undetected or unreported so that proactive corrective action can be taken. Employees wishing to file a report may enter the information on the Roadway Worker Near-Miss Reporting Form. Roadway Worker Near-Miss records are required to be retained for four years and made available to CPUC staff.

Accident/Incident Investigation Procedures

Except for accidents under the jurisdiction of the BART Police Department, investigations of CPUC immediately reportable accidents are performed by the System Safety Department. In the case of eBART, Supervisors of Operations in conjunction with the eBART Safety and Training Manager perform investigations and are responsible for completing the initial accident/injury report. For accidents not requiring immediate reporting to the CPUC, the System Safety Department, or Supervisors of Operations for eBART, may delegate the responsibility to another department. The eBART Safety and Training Manager will serve as the lead investigator of CPUC reportable accidents occurring at eBART and OAC.

Regardless of the class of accident investigated, all other department managers are responsible for providing technical expertise and information as requested and deemed necessary by the System Safety Department.

BART Process

The CSO is responsible for ensuring that the following activities, as appropriate, are performed for accidents/incidents:

- The severity of an accident/incident is evaluated upon notification, and a determination is made regarding the primary investigating department.
- Appropriate personnel are immediately dispatched to the accident scene to preserve evidence and gather pertinent information (sketches, photographs, witness statements, status of rail vehicle controls, wayside controls, etc.). For non-criminal incidents, the BART Police Department will provide support to the System Safety Department for this phase of the investigation. Police support may include providing pertinent information from security cameras and providing safety from motor vehicle traffic.
- A determination is made whether a "safety hold" needs to be placed on any District facilities, equipment, track, or rail vehicles, and whether any items need to be impounded for further investigation beyond the initial response.
- Oversight agencies (CPUC, FTA, Cal/OSHA, and NTSB) are appropriately notified.
- When a third- party agency elects to conduct their own investigation or participate in BART's investigation, an appropriate point of contact will be provided to formally communicate with the third party.
- When notified that a third- party investigation will be conducted, the System Safety Department shall coordinate the following minimum tasks with the third party:
    - Ensure preservation of the accident/incident scene in accordance with instructions and/or requirements provided by the third- party agency. The third- party instructions may supersede or supplement the District's own actions to secure the scene.
    - Identify and make available qualified personnel to represent the District on the various technical investigative teams that are organized by the third -party agency.
    - Establish points of contact to discuss appropriate responsibilities and roles for accident/incident scene management and evidence preservation.
    - Provide the name and office and cell phone numbers of the District's Manager of Media and Public Affairs (PIO).
    - Refer any press inquiries on the investigation to the public information officer for the third- party agency (e.g. NTSB PIO – 202-314-6100).
- A determination is made by the CSO regarding whether an Accident Investigation Team should be convened. Formation of an Accident Investigation Team is considered when the investigation requires the expertise and judgment of individuals from various BART departments or outside sources. The selection of Accident Investigation Team members, and the admission of others to attend Accident Investigation Team activities are at the discretion of the CSO, such that in no event will the process undermine the integrity of the investigation.
- The services of external specialists are enlisted as necessary.
- When accidents are required to be reported immediately to the CPUC, every effort will be made to facilitate the CPUC staff's full participation in the investigation, including but not limited to

giving advanced notice of interviews, inspections, examinations, tests, and meetings with investigators, consultants, and review boards. to review and analyze accident related information.

- When BART Police Department (BPD) is the primary investigator to an accident, BPD will coordinate CPUC staff's participation in the investigation with representatives from BPD.
- Guidance is provided to individuals involved in the investigation and full cooperation and exchange of information is maintained with the CPUC staff and others.
- A credible investigation is performed with adequate attention to the following, as appropriate:
    - Interviews and questioning of persons directly or indirectly involved in the accident;
    - Visual examinations, measurements and tests of rail vehicles, track, switches, signals, environmental conditions, facility conditions, and other similar items;
    - Sketches and/or photographs of the incident scene;
    - Operational reenactments simulating conditions that applied when the accident happened;
    - Identify and evaluate any underlying risks associated with the type of accident or location;
    - Drug and alcohol testing of individuals involved in the accident; and
    - Review of pertinent records including:
        - employee training, certification, and performance/supervisor evaluations;
        - hours of service records, employee work history prior to the accident and whether fatigue could be a factor;
        - rail vehicle and wayside equipment maintenance records;
        - CPUC G.O. 172 PED cab video records;
        - train operator and controller voice recordings;
        - rail vehicle and wayside data/event logs;
        - computer logs and records;
        - operating rules, procedures, bulletins, and notices;
        - police, coroner or fire service reports; and
        - reports of earlier similar rail accidents.
- Meetings are conducted with investigators, consultants, etc. to review and analyze accident-related information;
- Identification of causal factors.

eBART Process

The Supervisor of Operations serving as the rail controller is responsible for ensuring that the following activities, as appropriate, are performed for accidents/incidents:

- Determine the severity of an accident/incident upon notification
- Dispatch the appropriate personnel to the scene to preserve evidence and gather pertinent information (sketches, photographs, witness statements, status of rail vehicle controls, wayside controls, etc.). For non-criminal incidents, the BART Police Department will provide support to the System Safety Department for this phase of the investigation. Police support may include providing pertinent information from security cameras and providing safety from motor vehicle traffic.
- Make all required initial internal and external notifications

- Stop or reroute all rail traffic away from the accident/incident scene, if necessary, to ensure the safety of emergency response personnel and investigators, passengers, and the public.
- Restore service as soon as practical

The eBART Safety and Training Manager will perform the following tasks, as appropriate:

- Serve as the lead investigator for all CPUC reportable accidents or incidents
- Determine if a "safety hold" needs to be placed on any eBART facilities, equipment, track, or rail vehicles, and whether any items need to be impounded for further investigation beyond the initial response
- Determine if an Accident Investigation Team should be established to investigate major accidents and incidents. The activation of an Accident Investigation Team is considered when the investigation requires the expertise and judgment of individuals from various BART departments, or outside sources, to investigate major and complex accidents or incidents.
- Provide guidance to individuals involved in the investigation and full cooperation and exchange of information is maintained with CPUC staff and others
- Ensure a credible investigation is performed with adequate attention to the following, as appropriate:
    - Interviewing and questioning of persons directly or indirectly involved in the accident
    - Visual examination, measurement, and test of rail vehicles, track, switches, signals, environmental conditions, facility conditions, and other similar items
    - Sketches and/or photographs of the incident scene
    - Operational reenactments simulating conditions that applied when the accident occurred
    - Identification and evaluation any underlying risks associated with the type of accident or location
    - Drug and alcohol testing of individuals involved in the accident
    - Review of pertinent records including:
        - Employee training, certification, and performance/supervisor evaluations
        - Hours of service records, employee work history prior to the accident and whether fatigue could be a factor
        - Rail vehicle and wayside equipment maintenance records
        - DMU Engineer and controller voice recordings
        - Rail vehicle and wayside data/event logs
        - Computer logs and records
        - Operating rules, procedures, bulletin, and notices
        - Police, coroner or fire service reports
        - Reports of earlier similar rail accidents
- Conduct meetings with investigators, consultants, and technical experts to review and analyze accident-related information
- Develop or approve final accident or incident report

Accident/Incident Reporting and Documentation

A final report, recommendations where appropriate, corrective action plan(s) to prevent reoccurrence, implementation schedule, and the department responsible for the corrective action are developed for

all modes. The hazard management process should be utilized in determining recommendations. For accidents required to be reported immediately to the CPUC, the final report, corrective action plans, and an implementation schedule shall be approved by the CSO, or designee, and should be submitted to the CPUC staff within 60 days of the occurrence of the accident. For eBART and OAC, the Safety and Training Manager, or designee, must approve and submit these documents to CPUC and the CSO. The corrective action plan and implementation schedule may be submitted separately. The final report to the CPUC (and the CSO for BART and eBART) shall contain the following:

- A description of the accident, including the number and severity of injuries/fatalities and estimate of property damage;
- Photographs and sketches where appropriate;
- The scope of the investigation;
- The investigation findings based on the relevant facts;
- The most probable cause and underlying contributing causes;
- Recommendations to prevent recurrence.

For reportable accidents not involving a serious injury or fatality, the final report can utilize the CPUC's "Minor Event Report" Form per CPUC G.O. 164. If the investigation takes longer than 60 days, status reports will be submitted to the CPUC monthly with the first status report due 60 days after the reportable accident.

If an Accident Investigation Team is convened to investigate the accident, the CSO shall attempt to foster full agreement from all team members regarding the findings, conclusions, and causes of the accident. A Final Report shall be compiled and submitted to all team members and the CPUC staff in draft form. In cases where disagreement exists between team members regarding any aspect of the report, the CSO shall exercise ultimate authority. The Final Report is a System Safety Department document.

Corrective Action Resulting from Accident Investigation

It is the intent of all BART accident/incident reports to accurately identify the most probable cause and contributing factors of an accident/incident and make recommendations for corrective action to prevent a reoccurrence of similar accidents/incidents. Corrective action plans (CAPs) with implementation schedules are required in response to recommendations from accident investigations and must be formally approved by the CPUC. Proposed CAPs will be submitted for approval with the Final Report package. Requirements for CAP content, tracking, and completion are described in Section 7.8.

CPUC General Order 172: In-Cab Video Review

In cases where in-cab cameras are installed, records shall be reviewed to check for violations of the CPUC G.O. 172. In cases where a violation is observed, the video recordings shall be saved at least until the last appeal of any litigation or disciplinary action is complete or 3 years whichever is longer.

In-cab video records shall be reviewed to check for violations of the CPUC G.O. 172 under the following conditions:

1. After any derailment
2. After any impact between a rail transit vehicle and any other vehicle, object or person

3. After any activity or event on the right-of-way that results in death to any person, injury to any person requiring medical treatment, or injury to any RTA employee
4. After any reported complaint or observation of:
    a. An alleged violation of the District's personal electronic device policy
    b. A rule violation that may suggest distraction due to personal electronic device

In cases where violation was observed in the review, the video recordings shall be saved at least until the last appeal of any litigation or disciplinary action is complete, or 3 years whichever is longer.

The proper BART Police protocol shall be used when police report or video is requested by an outside agency.

7.4.2 OAC

Investigation

The Operator is responsible for maintaining an effective accident/incident notification, investigation, and reporting program, and for cooperation with investigations by the District or other outside agencies. Except for those under the jurisdiction of the BART Police Department or other law enforcement agencies, the Operator, with the oversight of the Safety and Security Committee, is responsible for investigating events considered to be near miss, lost time events, and any other event listed in the CPUC threshold.

The O&M Manager ensures the following:

- Investigation of the accident by preparing a structured accident report, including identification of causes and reporting of findings.
- Notifying the District of the accident as defined in the notification section.

Further investigation of the accident is performed by an accident investigation team. The designated O&M Manager, or in his/her absence the APM Operation Supervisor on duty, chairs the accident investigation team. Additionally, this team consists of at least one person from the operations group and one from the maintenance group. The safety representatives of the District, the insurance investigator, and the CPUC representative are asked to participate in the accident investigation team. The tasks of the accident investigation team within the accident investigation process involves the following steps:

- Collect and analyze accident evidence
- Determine primary and contributing causes
- Creation of recommendations to prevent future occurrences of similar nature
- Develop a Corrective Action Plan
- Implement the plan
- Evaluate the effectiveness of the corrective action
- Make changes for continuous improvement

Notification

The Operator notifies the Line Manager and the Line Manager notifies CPUC immediately of any reportable incident involving a train or taking place on OAC property. Notification is by telephone to the designated contact person. Immediately reportable incidents include the following:

- A fatality (occurring at the scene, or within 30 calendar days following the accident);

- One or more persons suffering serious injury;
- A collision involving a rail transit vehicle and any other vehicle, object or individual;
- A derailment of any rail transit vehicle at any location, at any time, whatever the cause; or
- A runaway train

As part of the notification, the Operator provides the following:

- The time and date of the incident;
- The location of the incident and direction of travel, including H-line track number and mile post marker, if applicable;
- The number of fatalities or injuries;
- The train numbers of the train(s) involved in the incident, if any;
- The factor from the list of reportable events above that makes the incident immediately reportable; and
- Narrative description of the accident, as known at the time of reporting
- The emergency response organizations at the scene of the incident.

Reporting

The Operator submits the written accident reports on forms prescribed by the Line Manager and/or CPUC. The Operator submits the written reports to the Line Manager and the Line Manager submits to CPUC, NTSB, and CSO, as required for all immediately reportable accidents.

The Operator, or designee, includes a monthly accident/incident corrective action summary in the agenda of the monthly SSRC meetings within 30 days after the last day of the month in which a reportable accident/incident occurred on forms prescribed by CPUC staff. Reports provide a summary of the reportable accidents/incidents, if they occurred that month, and status of all open corrective actions from previous accidents/incidents. The Operator provides report input for all accidents/incidents, which the District's Line Manager and/or BART Safety will review, revise as necessary, and submit to CPUC.

The Line Manager shall report incidents to FTA within 30 days via the National Transit Database and develop sufficient records for analysis. If the Line Manager later determines that an incident meets the definition of an accident, that event must be reported as stated above. Incidents include the following:

- A personal injury that is not a serious injury;
- One or more injuries requiring medical transportation away from the event; or
- Damage to facilities, equipment, rolling stock or infrastructure that disrupts the operations of a rail transit agency.

The Operator shall collect, track, and analyze data on occurrences to reduce the likelihood of reoccurrence. This data must be submitted to the Line Manager and be available for review by CPUC and/or the FTA. Occurrences include the following:

- Personal injury;
- Close calls or near misses;
- Safety rule violations;
- Violations of safety practices;
- Damage to catenary or third rail equipment that do not disturb operations; and

- Vandalism or theft.

7.5 Drug and Alcohol Program

The Employee Services Division of the Human Resources Department administers the District's Substance Abuse Program. Employees of all three modes shall comply with the District's Drug and Alcohol Prevention/Testing Program Requirements. The eBART Safety and Training Manager and the Operator for Doppelmayr implement the program within their respective modes. Each must also complete and sign a certificate of compliance with the Federal Drug and Alcohol Prevention/Testing Program.

The policies and procedures set forth in the Substance Abuse Program are in accordance with the Federal Department of Transportation requirements. The Assistant General Manager of Administration has the formal authority to approve revisions to the program.

7.5.1 Policy on Drug and Alcohol-Free Workplace

It is the policy of the District to foster and provide a drug and alcohol-free workplace for all employees. A drug and alcohol-free workplace protects the safety of the public as well as the District's valuable employee resources.

7.5.2 Guiding Principles

There are four guiding principles underlying the District's adoption of its policy on a drug and alcohol-free workplace. They are:

1. Education – The District believes that education and training of all employees on the effects and treatment of substance abuse disorders will contribute to a safer and more efficient workplace for everyone.
2. Deterrence – The District is committed to eliminating the effects of substance abuse in the workplace. All employees are prohibited from using, possessing, buying or selling drugs or alcohol in the workplace, and are prohibited from reporting to work or being subject to work (specifically, on call or on break) with prohibited drugs or alcohol in their systems.
3. Enforcement – The substance abuse policy will be strictly enforced. Violation of its requirements will be cause for discipline, up to and including termination of employment.
4. Treatment – The District is committed to helping employees with admitted substance abuse problems overcome those problems, and encourages use of the voluntary rehabilitation option.

7.5.3 Policy Purpose

The purposes of the District's substance abuse policy are:

1. To implement a fair and balanced approach to eliminating substance abuse and its effects on the job;
2. To protect all passengers and employees;
3. To provide a strong incentive for voluntary rehabilitation; and
4. To implement the requirements of the Omnibus Transportation Employee Testing Act of 1991, 49 CFR Part 29 – The Drug Free Workplace Act of 1988; 49 CFR Part 40 – Procedures for Transportation Workplace Drug and Alcohol Testing Programs; and 49 CFR Part 655 – Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations.

7.5.4 Rules

Effective January 1, 1995, District Safety Sensitive employees were subject to the drug and alcohol testing requirements of the Omnibus Transportation Employee Testing Act of 1991 and the U.S. Department of Transportation regulations (49 CFR Parts 40 and 655) as they may be supplemented and amended from time to time. The District is also subject to the Drug Free Workplace Act of 1988 (49 CFR Part 29). The District's Substance Abuse Program applies to all District employees and goes beyond the federal requirements. The District's Substance Abuse Program provides the conditions for return to work or disciplinary action.

7.5.5 Employee Subject to Testing

Pursuant to District policy and Federal regulations, employees who perform safety-sensitive functions will be subject to Pre-Employment, Pre-Duty, Reasonable Cause and Post-Accident, Random, Return to Work, and Follow-Up testing. Non-safety-sensitive employees are also subject to Pre-Employment, Pre-Duty, Reasonable Cause and Post-Accident testing. The District adheres to FTA policy requiring random drug testing at least 50 percent of FTA-mandate-covered employees. BART completes and submits the FTA-required Management Information System (MIS) report annually for each mode, which identifies all testing rates and results for individuals tested under the program.

The Department of Transportation rules apply to each "covered employee" defined as a "person, including a volunteer, applicant, or transferee, who performs a safety sensitive function". Contractors and their employees who perform safety sensitive functions are covered employees. A "safety sensitive function", by Federal rule definition, means any of the following duties:

- Operating a revenue service vehicle, whether or not the vehicle is in service;
- Operating a non-revenue service vehicle when required to be operated by a holder of a Commercial Driver's License;
- Controlling dispatch or movement of a revenue service vehicle or equipment used in revenue service;
- Maintaining a revenue service vehicle, including repair, upkeep or any other process that keeps the vehicle operational, or maintaining equipment used in revenue service;
- Carrying a firearm for security purposes.
- Supervisors who perform any of the functions or whose job description includes the performance of any of the functions listed above.

7.6 Management of Change

The management of change process establishes a means for the District modes to identify and assess changes that may introduce new hazards or impact the mode's safety performance. The District has various methods for managing change such as procurement, configuration management, and system modification. When a District mode determines that a change may impact its safety performance, then it must evaluate the proposed change through its Safety Risk Management process (see Section 6.0) and the processes listed below.

7.6.1 Procurement

The procurement process for BART and eBART is discussed below. OAC has a separate process discussed at the end of this section.

Procurement and Material Management Department

The Procurement and Material Management Department consists of three divisions: *Purchasing* is responsible for buying goods and services; *Contract Management* develops and administers construction, installation, and equipment procurement contracts; and *Inventory and Stores* is responsible for the inventory of parts and supplies required to support the District's maintenance, operations and capital projects.

Parts Material and Purchasing and Inventory Control

Safety-critical parts can only be purchased through the Purchasing Department using only those purchase specifications approved by BART Engineering. The engineering discipline responsible for that specific equipment or facility defines the receiving inspection requirements in the BART engineering specifications. The department responsible for the installation of the replacement part typically performs inspections, but the Stores Department inspects certain parts, such as those for escalators and elevators. The organizations performing receiving inspections are also responsible for segregating rejected parts to prevent them from being used.

Safety Data Sheet Program

All hazardous materials used on District property must have approval by the System Safety Department prior to being purchased and used. BART uses the Sitehawk online Safety Data Sheet (SDS) system to provide safety information and to keep track of chemical approvals. District personnel who want to introduce a new hazardous material must complete the Material Approval request in Sitehawk. Safety Data Sheets (SDS) are required to be filed with the System Safety Department by the supplier/vendors. System Safety Department personnel review the proposed material to determine if it can be safely handled. Approval or rejection is then indicated and communicated to the requestor. All records are maintained in Sitehawk. Additional information about the hazardous materials management program is contained in section 8.2 of the PTASP.

OAC Procurement Process

Procurement of any safety-critical equipment for the system shall only be purchased through the Original Equipment Manufacturer (OEM) or by manufacturers/vendors specifically approved by the Oakland Airport Connector's manufacturer and/or the District.

Materials and services shall be procured in accordance with the Operator's defined procurement process. Parts and materials shall be procured from the Operator's list of approved vendors to the extent possible.

All parts and materials shall be inspected upon receipt by one of the Operator's designated personnel to ensure the quality of the receivable and shall be tracked in the Operator's Maintenance Management Information System (MMIS).

7.6.2 System Modification

System Modification for BART & eBART

The process used by the District to ensure that safety concerns are addressed in modifications to existing systems, vehicles, and equipment, which do not require formal safety certification plan, but may have safety impacts, is described herein.

The design of any project/modification starts with the identification of appropriate design criteria. In many cases, the criteria have already been developed and approved for use within the District. In cases where the criteria are absent, the project manager will conduct an evaluation to identify pertinent industry standards for use in controlling the design.

Safety certification is required for major projects (see Section 7.6.3). Formal safety certification may not be required for smaller or maintenance projects. Nevertheless, a preliminary hazard analysis must be conducted during the initial design phase, hazard mitigation methods shall be tracked using the tracking matrix. Safety/quality control process must be incorporated into each project to ensure that safety critical requirements are identified and systematically checked-off against the final design and as-built facilities/installations.

Projects shall implement a configuration management system for use during the design and construction phases of the project. This system should be capable of allowing District staff the capability to review such documents throughout various phases of construction to ensure specific guidelines are met. This system shall also provide a method to migrate the project's electronic files and documentation into the District's current configuration management system after the project's final phase has been completed. A project document control system shall be used to track design review and comment resolution dispositions. BART Engineering Change Orders (BECOs) shall be generated if new information needs to be added or if a modification is to be made to District-controlled documentation.

Configuration and maintenance procedure changes generated by the various engineering divisions are submitted to the Documentation Division using a BART Engineering Change Order (BECO). The Documentation Division reviews the submitted BECO for appropriate authorization, completeness, and accuracy. The originator of the BECO must send a copy of the BECO to the System Safety Department upon initiation of the BECO form. Those change orders having potential safety impact are assigned to a staff member of the System Safety Department for follow-up. The Documentation Division then revises the affected documentation per BECO instructions and distributes copies of the revised documents to the affect District departments and divisions as appropriate.

If necessary, Preliminary Hazard Analysis shall be conducted with the participation of all stakeholders. This is to ensure any new addition or modification to the system will not introduce a new hazard. Mitigations are provided are tracked until closure using the hazard matrix.

System Modification for OAC

The System Designer is Doppelmayr Cable Car. Any changes in the design require approval by the District and the System Designer. Depending on the magnitude of the change, modifications will be classified as "Minor Modifications" or "Major Modifications" and will be subject to the following.

Minor Modifications: For system modifications that do not require system certification, whether performed by the Operator, the District, or the manufacturer, the Operator's Safety Coordinator ensures a safety/quality control process is incorporated into the project to ensure that safety critical requirements are identified and systematically checked off against the final design and as-built facility installations.

Major Modifications/Expansions to the System: System extensions, major system overhauls, and fleet replacement will require CPUC re-certification as required by CPUC G.O. 164 and as described in the

OAC contract. The process shall follow applicable CPUC and FTA guidelines, and will be similar to the process that was followed during the original Design and Construction of the OAC, but will be adapted to the particular scope of work and updated to comply with current regulations. Should BART and the Operator contend that the initial certification remains valid, that information may be presented to the CPUC for concurrence. See section 7.6.3 for more information on BART's Safety Certification Process.

7.6.3 Safety Certification

Projects and modifications for any BART mode may require "Safety Certification", as determined by the System Safety Department or by the requirements in CPUC G.O. 164. According to CPUC G.O. 164, Safety Certification is required for major projects. For major construction projects, the design will need to be formally safety certified to ensure the design is in full compliance with the design criteria. Major Projects are defined in the General Order as: new rail systems and extensions, the acquisition and integration of new rail vehicles and safety critical technologies into existing service, and major safety critical redesign projects, excluding functionally similar replacements.

For all Major Projects, G.O. 164 requires that Safety and Security Certification Plans (SSCP) be developed and submitted to CPUC for approval during the preliminary design phase of the project. The System Safety Department should be consulted regarding the format, scope, and content of the SSCP. Prior to revenue service, a Safety and Security Verification Report (SCVR) will need to be submitted to, and approved by, the CPUC.

All other projects can use the District's in-house safety and security certification plan. Complete safety conformance certificates are submitted to the Chief Safety Officer.

The purpose of safety certification is to confirm that the system is safe for public use. The certification process is used to track the events that show inclusion of safety-related requirements, beginning with initial criteria through pre-revenue activities. Verification that safety-related requirements and codes are satisfied is accomplished by the persons performing and/or responsible for these processes.

Certification Process

The certification process requires the identification of certifiable elements that might include items such as train control, communications, traction power, track, station fire/life safety equipment, etc.

For each certifiable element, a number of following six certifiable factors may apply:

- Design Criteria Conformance
- Specification Conformance
- Safety-Related Testing Conformance
- Rules and Procedures Conformance
- Training and Drills Conformance
- Hazard Resolution Conformance

All application certifiable factors for each certifiable element shall be safety verified prior to revenue service. Verification must be documented in the form of completed review checklists, inspection records, and test results. Should the verification process disclose "EXCEPTIONS", they shall be tracked through resolution and documented. Closure shall be accomplished by the responsible Engineer and the appropriate BART technical discipline staff with the concurrence of BART System Safety.

The verification process is further validated by selected audits performed by the BART System Safety Department or delegated representative.

The final steps of Safety Certification before the new or modified system, equipment or facility is used in revenue service are as follows:

1. A responsible District project Engineer shall provide (or make available) the following to the System Safety Department:
    a. A written list of all analyses and tests that have been conducted to ensure the safety of the project or modification;
    b. A Safety Certification Certificate that includes: A written statement that no known unacceptable or undesirable hazards to persons or property are known to exist; and a written statement that all applicable requirements in the Safety and Security Certification Plan (except for those covered in "2" below) have been satisfactorily completed. Exceptions, if any, will be listed and mitigation workarounds/restrictions described. Pertinent supporting Certificates of Compliance should be attached to this Certification Certificate.
2. The department manager responsible for the operation of the project or modification, will provide the following to the System Safety Department:
    a. A Certification of Compliance that includes a written statement that (1) District employees responsible for the operation of any facility/equipment resulting from the project or modification have been trained in its safe operation; and (2) the pertinent rules and procedures have been appropriately updated/added;
    b. A written "Notice of Intent to Operate", which provides a minimum of twenty days notification of the District's intent to utilize the facility/equipment.
3. For projects that are following CPUC G.O. 164, the Chief Safety Officer will complete and submit the SCVR to the CPUC at least 21 calendar days prior to the start of service.

7.7 Continuous Improvement

BART has established different processes to continually assess its overall safety performance and to provide formal structures for continuous improvement. While this section details safety data acquisition and analysis, BART's safety role on the various committees described in Section 6.1.2; its regular schedule of outside audits (e.g. FTA, CPUC, and APTA), its Internal Audit program described in Section 7.1, and other programs described throughout this PTASP serve as formal means of identifying and addressing safety-related issues for improvement. In addition, BART is a member of multiple international benchmarking groups and is actively involved and constantly seeking ways towards continuous improvement.

7.7.1 Safety Data Acquisition and Analysis

BART & eBART Safety Data Acquisition Process

It is the task of the System Safety Department to monitor safety performance of the District's operations. Selected data is accumulated and analyzed by the System Safety Department. This data includes employee injury and illness reports, patron accident reports, rules and procedures violations, Unusual Occurrence Reports (UORs) and BART Safety Notices (BSNs).

This collection and maintenance of safety data is performed using Maximo HSE database system and will be presented on the SharePoint dashboard upon completion and made available to the District's upper management. Until such time as the safety dashboard is established, safety data is presented in the monthly Operations Summary reports, quarterly performance reviews to the BART Board, quarterly CPUC-BART safety meetings, and various safety committees. A primary use of this information is the tracking of hazard-related data to identify safety-related trends. These trends are further analyzed or investigated by the System Safety Department, with the assistance of the affected department, to identify causal factors and pinpoint the specific areas of concern. This is accomplished by interviews with personnel in the affected department(s) and analysis of pertinent documentation. Identified hazards are submitted to the management of the department that would be responsible for implementation of the necessary corrective action. Also included in the submittal are recommendations for corrective action or a request for corrective action development.

Access to Data

Accident/Incident and Injury Documentation: It is the responsibility of each department manager to ensure prompt reporting of all accidents and injuries on District property to the System Safety Department.

1. *Operations Safety*: Operations accidents and incidents, including CPUC and FTA reportable ones, are reported to System Safety by OCC via management notification system. Daily OCC Manager's Logs are reviewed by System Safety for any safety accidents and incidents for Maximo HSE database. Any Operating hazard data is tracked and discussed at the quarterly CPUC-BART safety meetings.

2. *Patron Injury*: Patrons claiming injury on District property report such incidents to BART personnel (typically a Transportation Supervisor or Station Agent). The Supervisor or Station Agent will then fill out an *Accident/Injury Report Form* that is then distributed to the Insurance and System Safety Departments. The reports are reviewed and analyzed by the System Safety Department's Environmental, Health and Safety Division. Section 7.4 contains additional details on how these reports are used when conducting accident investigations.

   The Maximo HSE as our safety data repository database compiles statistics for selected types of patron injuries, including type of accidents and trend indications. Patron safety statistics include the reporting of incidents/accidents that occur in stations and in the vehicles. Station incidents include the following: Platform, concourse, stair, escalator, elevator, track falls and parking lot areas. Vehicle incidents include the following: Gap falls, boarding and alighting, struck by vehicle doors while boarding/alighting, and on-board incidents.

3. *Unusual Occurrences:* Each unusual occurrence, such as an accident, disturbance, irregularity, or rule/procedure violation which might affect service, or involve or threaten injury to persons or damage to equipment on District property, require that an *Unusual Occurrence Report* be prepared. Section 7.4 contains additional details on how these reports are used when conducting accident investigations.

4. *Employee Injury/Illness:* Employee work-related illness or injury is reported by Supervision to the Human Resources and System Safety Departments using the *Supervisor's Report of Injury/Illness Form (Form #0030).* The reports are reviewed and analyzed by the System Safety Department's

Employee/Patron Safety Division. The System Safety Department staff will investigate and provide follow up to severe injury incidents. The BART SharePoint dashboard also reports on selected types of employee safety statistics including: Lost time injuries/illnesses cases by job classification, stress-related illnesses by job classification and lost workdays, OSHA recordable injuries and illnesses by type, and OSHA recordable sprain/strain injuries by body parts. BART is self-insured and claims are administered by a third-party administrator.

All incident-related formal reporting to outside regulatory agencies is performed by the System Safety Department. Records of the incident and its investigation are kept on permanent file in the System Safety Department.

5. *Employee Safety Complaint*: Potential safety hazards in an employee's work area are reported to his/her immediate supervisor. If the employee is not satisfied with the supervisor's response, he/she may complete a *BART Safety Notice* (Form #0836), bringing the matter to the attention of the System Safety Department. The completed form is given to the supervisor and a copy sent to the System Safety Department, typically including comments from the supervisor. The BART Safety Notice is reviewed and the potential safety hazard is analyzed and investigated by the System

   System Safety Department's Employee/Patron Safety Division. There is a BSN tracking database on System Safety's SharePoint site.

6. *Near Miss Reporting*: The purpose of the RWP Near-Miss, Non-Punitive Reporting Program is to encourage employees to report near-miss incidents related to the safety of individuals located in (or adjacent to) the trackway due to (1) the movement of all on-rail vehicles on mainline, in yards, in local control areas, and on tracks in shops, and (2) the third rail power system associated with propulsion of revenue service vehicles. The intent is to become knowledgeable of unsafe acts that would otherwise go undetected or unreported so that proactive corrective action can be taken. The employee may complete a Roadway Worker Near-Miss Reporting Form (Form #13-73-0006) or by calling the Safety Hotline. There is also an Employee Safety Hotline which allows for near miss reporting.

7. The BART Resource Center provides BART historical files, technical books, contract drawings, contracts, contract test procedures, maintenance manuals, and as-built drawings.

8. The Maintenance and Reliability Information System (MARIS), managed by Rolling Stock and Shops (RS&S) Department, provides a computerized database for recording all of the functional incidents and failures reported for transit vehicles, wayside electronic and mechanical equipment, and yard equipment.

9. The BART Legal Department maintains extensive historical files, including the Litigation Support Task Force files and Archives file.

10. Outside sources of transportation data are available to BART through the National Technical Information Service (NTIS), other transportation/transit agencies and university libraries.

11. Regarding health, safe work practices and environmental issues, information sources include The Alameda County Department of Health, Cal/OSHA Consultation Service, and other regulatory agencies.

OAC Safety Data Acquisition Process

Qualifying safety concerns brought forward prompts the Operator to collect data and analyze trends for mitigation using the Hazard Management Process described in Section 6. Data regarding accidents, incidents, hazardous conditions and operations may be obtained from several different reporting mechanisms. The OMMIS software module is used to track all aspects of system performance. The Automated Train Supervision software tracks all system faults. Findings or reports of unacceptable risks are shared as needed to ensure the risk is eliminated, mitigated or accepted.

In addition to the above safety data, the Operator's Safety Coordinator compiles information regarding:

- Ridership (provided by the District)
- Safety bulletins
- Training
- Drills
- Incident records
- Maintenance records

The OAC Line Manager is responsible for collecting and analyzing the safety data and ensures that the OAC Safety and Security Review Committee (SSRC) (including BART Safety) periodically reviews safety data and analyses. All safety data described above is maintained electronically and/or in hard copy by the Operator for a minimum of seven (7) years or as required by law.

7.8 Corrective Action Plans

CAPs are a vital part of continuous improvement and should be regarded as positive initiatives to fix deficiencies and improve safety. CAPs are developed from numerous sources including, but not limited to:

- Internal safety audits,
- CPUC and other external agency audits,
- Safety event investigations, and
- Hazards reported through safety risk management activities.

The sections regarding each of these sources earlier in this PTASP describe in which situations a CAP is required. Though generally, issues that can be corrected immediately and do not result in a change do not required a CAP. The CAP, if required, will include:

- A CAP identification number
- The source and identified deficiency
- A description of the task to be performed that will correct the item;
- Multiple sub-tasks and milestones, for complex corrective action plans;
- An assignment of who, by title and department, is responsible for accomplishing the corrective action; and
- A schedule for completion of the corrective action with intermediate milestones, as appropriate.

Where immediate or emergency corrective actions are required to ensure immediate safety, the District will implement the corrective action prior to CPUC approval insofar as the District provides timely notification of the CAP to CPUC with subsequent CPUC review and approval.

Every CAP must be proposed to the CPUC for formal approval before implementation. Once approved, the original reported item (e.g., a hazard on a hazard log) may be closed with a CAP opened for tracking. All CAPs are tracked through Maximo and maintained by System Safety Department personnel. Once a CAP is generated, a work order goes to the person or department responsible. Reminders are generated before CAP due dates to let those responsible know the CAP is nearly due.

Implementation schedules for CAPs depend on their source. CAPs derived from all sources except accidents or incidents have varying implementation dates. Accident CAPs are due within 60 calendar days of the safety event and are submitted as part of an accident/incident investigation report or in a separate document. If the CAP implementation takes longer than 60 calendar days to complete, the responsible department shall submit interim status reports, entitled *CPUC Monthly Service Record, Events, and/or Hazard and Corrective action Plan Summary Report,* every 30 calendar days. CAPs derived from other sources may use this form as well. The CAP will identify the action to be taken with an accompanying implementation schedule and the individual, or department, responsible for the implementation. Triennial audit CAPs require interim status reports according to the CPUC Commission Resolution.

For eBART and OAC, a tracking log will be maintained by the eBART Safety and Training Manager to document the status of all recommended corrective actions. Additionally, the eBART Safety and Training Manager will track corrective action plan items on a database for safety open items. The status of open audit items will be included as part of the annual report.

Every CAP has a second point at which it must receive CPUC approval, which is when BART has determined the CAP to be complete. BART will link to verification material in the Maximo CAP entry and submit it to CPUC. Once the CPUC has approved the CAP for closure, it may be indicated as closed in Maximo.

The status of CAPs is reported monthly to CPUC on its Form V. Status is also discussed at the CPUC Monthly CAP Meetings and CPUC-BART Quarterly Meetings.

8.0 Safety Promotion

Safety promotion, the final component of the SMS, involves safety training, safety messages, operations bulletins and notices, and safety communication supporting safe practice. The System Safety Department is developing a module for new employee orientation that covers System Safety Department roles, safety responsibilities of employees, and the mechanisms for reporting and resolving hazards.

8.1 Competencies and Training

8.1.1 BART and eBART

The Training Department within each discipline at BART conducts certification and technical skills training classes to non-supervisory employees, provides safety training to all employees and contractors, and provides supplemental orientation to incumbent employees. At eBART, the Safety and Training Manager, or his/her designee, conducts all safety-related training classes for employees. Job-specific technical training will be provided by the respective superintendents, Assistant Superintendents, and Supervisors of Operators who possess the required skills and knowledge. Training can also be provided by equipment OEMs and consultants with approval from the eBART Safety and Training Manager or the COO. BART and eBART personnel who take and pass the required classes, will be certified to perform respective duties. The CSO receives the equivalent safety training that employees and contractors receive from the Training Department. Additionally, BART and eBART use the Pathlore Learning Management System to support aspects of providing for and tracking required employee training across departments.

The Performance and Learning Division of the Office of Administration conducts new employee orientation classes and provides supplemental orientation to incumbent non-supervisory employees. The eBART Safety and Training Manager will audit eBART's training programs and administration every year.

Employee Safety

Employees, whose duties directly impact the daily safe operation of the system, must be formally trained and certified by successfully completing specialized training courses, typically provided by the District. Also, these employees must pass recertification on a regularly scheduled basis to retain their positions.

The basic training programs for the above positions include the BART Operations Rules & Procedures Manual for BART personnel, eCOR for eBART personnel, special instructions pertaining to the specific craft, simulator training where applicable, and on-the-job training under supervision. Training and certification are provided for new employees and those promoted to positions of increased responsibility. Upon successful completion of training and testing, the District issues a certification to the employee.

The testing programs include performance and /or written examinations designed to determine the employee's knowledge and understanding of job functions as well as the ability to perform job functions. Any employee who does not complete the training and testing program or who fails to qualify for subsequent recertification, is not granted certification by the District and is not permitted to perform the craft in question until certification is acquired.

The positions requiring training and certification, frequency of recertification, and the organization providing training are presented as follows:

Table 8.1: BART Training and Recertification Matrix

Positions Requiring Training and Certification	Frequency of Training and Recertification	Organization Providing Training
Train Controllers	Every 2 Years	Transportation
Power/Support Controllers	Every 2 Years	Transportation
Train Operators	Every 2 Years	Transportation
Station Agents	Every 3 Years	Transportation
Tower Foreworkers	Every 2 Years	Transportation
Transit Vehicle Mechanics	Every 3 Years	RS&S
Electricians	Every 3 Years	M&E
Electronic Technicians (Revenue Vehicles)	Every 3 Years	RS&S
Electronic Technicians (Train Control)	Every 3 Years	M&E
Electronic Technicians (Communications)	Every 3 Years	M&E
Electronic Technicians (Computer)	Every 3 Years	M&E
On-Rail Equipment Operators	Every 3 Years	M&E
BART Police	Every 2 Years	California Commission on Peace Officers Standards and Training

Table 8.2: eBART Training and Certification Matrix

eBART Certification/Recertification Requirements				
General Requirements	**New hire**	**Class Length (Hours)**	**Recertification Interval (Years)**	**Recertification (Hours)**
Safety Training				
Roadway Worker Protection		12	2	8
Annual Safety Training		8	2	8
DMU Engineer/CVM Yard Orientation		2	N/A	
Blue Signal Protection		2	N/A	
Defensive Driving Testing		1	N/A	
Individual Work Groups				
Composite Vehicle Maintainers		165	2	16
Systems Maintainers – Track/Civil		88	2	16
Systems Maintainers – Signal/Comm.		144	2	16
Assistant Superintendent – Operations		345	2	
Supervisor of Operations		245	2	16
Diesel Train Engineers (Class 1)		125	2	16
Custodians				
Outside Contractors				
Contractors – RWP		8	2	8

Employee Safety Program

The Manager of Employee/Patron Safety is responsible for implementing the *District Management Procedure - Employee Safety Program* and the Injury and Illness Prevention Program (IIPP). The Employee Safety Program is established to provide a control program to minimize the occurrence of

accidents and associated employee injuries involving District operations. A coordinated District effort is necessary to achieve this goal. Specific procedures will be provided to identify and eliminate unsafe conditions and employee actions, as required.

Personnel responsibilities and authority established in this program are in addition to responsibilities imposed by the District *Operations Rules & Procedures Manual*. The System Safety Department's involvement with Operations Department will also be defined. Enforcement of the program will be accomplished through the joint efforts of the System Safety Department, the General Manager's Office and individual department managers**.**

The Employee Safety Program is intended to establish a high level of safety consciousness by District personnel. The main objective of the Program is to increase the level of safety consideration and reduce accident occurrence. The implementation of the Program will ensure District compliance with the regulations.

The Employee Safety Program establishes the process by which affected departments shall incorporate industrial safety practices. Management and worker responsibilities are established on a departmental basis.

The Program affects all departments with particular emphasis placed on Maintenance & Engineering, Transportation, and Procurement. Each affected department shall comply with the Program as it applies to its respective operations. Individual departments shall implement procedures amplifying or detailing areas of the Employee Safety Program as it relates to their respective organizations. These procedures must be reviewed and approved by the System Safety Department prior to implementation and must not be in conflict with the Employee Safety Program.

Industrial safety and hygiene responsibilities include:

- Monitoring and evaluating industrial conditions and practices within the District;
- Evaluating District programs and practices to ensure compliance with federal, state, and local codes, laws and regulations;
- Conducting industrial hygiene surveys of District facilities for conditions that may affect employee/patron/public health. Also, contract with and manage industrial hygienists that conduct such surveys for the District;
- Developing solutions/corrective actions necessary to minimize employee and public safety hazards and the possibility of property damage; and,
- Serving as the District’s liaison to regulatory agencies.

In order to comply with the District’s Injury and Illness Prevention Program (IIPP), maintain a safe and healthful working environment, and prevent injuries, illnesses, and accidents in the workplace, BART and eBART provides training to each employee with regard to general safety procedures and to any hazards or safety procedures specific to that employee’s work assignment.

The following is a list of safety and health training programs that are part of the overall District Illness and Injury Prevention Program:

- Injury & Illness Prevention
- Accident Reporting/Investigation

- Driver/Vehicle Safety
- Electrical Safety
- Powered Industrial Truck (Forklift)
- Safety Inspection
- Lead Awareness
- Asbestos Management
- Personal Protection Equipment
- Fall Prevention
- Confined Space Entry
- Hearing Conservation
- Bloodborne Pathogens
- Hazard Communication
- Respiratory Protection
- Lock Out / Tag Out
- Ergonomics Awareness
- Emergency Action
- First Aid / C.P.R.
- Ladder Safety
- Welding/Hot Work Safety
- Heat Illness Prevention

Specific training will be provided based on job classifications.

CPUC General Order 172 Training

In accordance with CPUC G.O. 172, the District has developed a Zero Tolerance Policy for violations of District rules related to the use of personal electronic devices. Affected individuals shall receive notification and instruction on the policy and program and shall receive a refresher course every two years. Training records shall be maintained for a minimum of three years.

CPUC General Order 175 Training

In accordance with CPUC G.O. 175 Roadway Worker Protection requirements, all BART and eBART employees qualified to access the BART or eBART Right-of-Way unescorted shall be trained on applicable wayside safety rules and procedures. Retraining shall be performed at least once every 24 months and training records shall be maintained for a minimum of three years.

Employees must be currently certified by the District's Roadway Worker Protection Certification Training Program or is escorted by a currently certified roadway worker when accessing the Right-of-Way, including responding to an emergency.

49 CFR Part 672 Safety Training

In accordance with 49 CFR Part 672 requirements, all BART, eBART, and OAC personnel directly responsible for safety oversight of rail operations are required to complete all courses comprising the Public Transportation Safety Certification Training Program and must attain the Transit Safety and Security Program (TSSP) Certificate. This requirement also applies to the CSO.

BART Management SMS Training Program (32-hour) & Roadway Worker Protection (8 Hour)

In response to a finding of the CPUC, BART has developed and administers 40 hours of annual safety training to all BART managers from all departments. The SMS Training Program includes:

- Regulatory Overview
- State Safety Oversight Program Standard
- G.O. 172 and 175
- Safety Program Requirements
- System Safety vs SMS
- SMS Framework
- Employee Reporting Programs
- Hazard Identification, Analysis, and Evaluation
- Safety Risk Mitigation
- SMS, a Practical Application
- Field Exercise

Managers who are required to take this course also are given an exam and are required to take the 8-hour RWP course.

Contractor Safety Training

When a contract involves work in or around the operating trackway, or where the work has the potential of affecting the safety of the BART or eBART operating system, the responsible Resident Engineer shall ensure the following before allowing the Contractor's work to proceed:

1. For work within the Right of Way (ROW), the contractor must receive BART's 40-hour RWP training. For work outside the ROW, the contractor's on-site supervisor must receive the 4-hour Contractor training. The contractor's on-site supervisor has received the two-day Annual Contractor Superintendent Trackway Safety Certification training, and all other on-site contractor personnel have received the 4-hour OR&P training;
2. The contractor's work plan has been submitted to and approved by BART or eBART;
3. An Employee in Charge (EIC), as defined in the OR&P Section 8301, has been assigned to oversee the work; and
4. Appropriate clearance authorization has been established with the Operations Control Center.

Recordkeeping

Permanent records of personnel training are maintained by the training organization responsible for providing certification/recertification for that employee's craft. At eBART, training records of personnel are maintained in accordance with the eBART Training Records Management Plan. These records are available upon request at the eBART Maintenance Facility.

Compliance with Training Requirements

Both the Internal Safety and Security Audit Program and the CPUC Triennial Safety Audit provide the means in the assessment of compliance with training and certification requirements. Audit process may include reviews of employee training, certification and re-certification records, observations of training / refresher courses, site visits, and in-person interviews with employees and management.

Training shall be provided for every new employee of passenger service and as defined in the Operator's Certification and Training Plan. The training program shall include formal instructions and on-the-job training and shall lead to certification of employees for their respective tasks. Training includes distribution of instructional literature and experience with equipment. Training on the actual system equipment and/or spare equipment is permitted provided adequate supervision by certified personnel.

In addition, all Contractor and Subcontractor personnel working will be trained as necessary to ensure they are aware of and follow all safety relevant protocols associated with their work.

8.1.2 OAC

Training Plan

The overall training plan and the specific training plans have been developed for the persons involved in operation, maintenance, and servicing of the system.

Safety-related training topics from the training plan are performed initially for each new hire and refreshed every 2 years. Specific certifications are required prior to employees performing safety sensitive work without the oversight and guidance of a certified employee. Those certifications shall be refreshed every two years and include the following:

- System Safety
- Central Control Operator
- Tow Maintenance Vehicle

The O&M Manager shall be responsible for the implementation and control of all trainings according to the overall and specific training plans. Implementation and control will include tracking each employee's certification and training history, maintaining all training records, and periodic retraining according to a defined schedule. A summary of training records is maintained on a spreadsheet/database.

All training records are maintained for each employee within their employee file and subcontractor personnel in the subcontractor's training file. These training records shall be made available for review by the District and CPUC.

The O&M Manager shall verify contractors' and subcontractors' training and qualifications based on the training plans and records before beginning work.

Employee Safety

The main focus of employee training is on employee safety. In particular, training issues shall include:

- G.O. 175: Roadway Work Protection
- Hazardous materials and applicable Occupational Safety and Health requirements
- Safety requirements that employees and contractors must follow when working on, or in close proximity to, the transit system
- Requirements for employees to wear and use various types of personal protective equipment for specific work and in specific locations
- Measures for reduction of work-related injuries

The O&M Manager ensures that every new employee is trained in employee safety and each employee is System Safety recertified every two years. Regular on-the-job audits (at least annually) shall be

performed by the System Safety Coordinator to verify that employees are following the safety requirements while performing their duties. The O&M Manager is responsible for the planning, organization, and implementation of these audits and for ensuring all required certifications are maintained.

8.2 Hazardous Materials Program

8.2.1 BART and eBART

Hazardous Materials Management

Hazardous Materials management is a commitment by the responsible department to the correct handling and disposal of hazardous materials as explained in the following programs:

1. *Safety Data Sheet (SDS) Program*: All hazardous materials used on District property must have approval by the BART System Safety Department or by the eBART Safety and Training Manager prior to being purchased and used. BART and eBART use the Safety Data Sheet (SDS) system to provide safety information and to keep track of chemical approvals. District personnel who want to introduce a new hazardous material must complete the Material Approval request in Sitehawk. Safety Data Sheets (SDS) are required to be filed with the System Safety Department, or eBART Safety Department for eBART, by the supplier/vendors. System Safety Department personnel or the eBART Safety and Training Manager review the proposed material to determine if it can be safely handled. Approval or rejection is then indicated and communicated to the requestor. All records are maintained in Sitehawk for BART, whereas hardcopies are kept in the Safety Data Sheet file in the eBART Shop Office for eBART.
2. *Hazard Communication Program*: As required by Federal, State and Local regulations, BART and eBART maintains a *Hazard Communication Program*. This program provides employee training in the proper storage, handling and use of products containing hazardous materials. The BART System Safety Department and eBART Safety disseminate training information, pertinent to the storage, handling and use of hazardous materials, to Maintenance managers. These managers have the responsibility to ensure that personnel are adequately trained in the handling and use of these materials. The BART Industrial Hygienist and eBART Safety and Training Manager have the following responsibilities under this program:
    a. Maintain a list of hazardous chemicals using the identity that is referenced on the SDS
    b. Monitor the effectiveness of the program
    c. Conduct annual audit of the program to ensure compliance
    d. Monitor employee training to ensure effectiveness
    e. Keep management informed of necessary changes
    f. Ensure SDSs are available as required
3. *Hazardous Materials Business Plan*: As required by California State legislation (AB 2185AB 2187), the *BART Hazardous Materials Business Plan* specifies that personnel who handle hazardous materials are given specific training regarding reporting requirements, inventory control and storage, product release or spill, and the response and cleanup of spill incidents. The System Safety Department is responsible for maintaining this plan and audits its implementation to ensure compliance. Personnel from the Environmental Compliance and Employee Patron Safety Divisions work to achieve compliance with applicable regulations.
4. *Hazardous Material Spills Cleanup:* The System Safety Department develops plans and manages the District's/contractors efforts in the cleanup of hazardous materials contamination. The

System Safety Department also provides, as needed, employee guidance in the safe cleanup of hazardous material spills. eBART uses contractors who maintain the appropriate licenses and proper equipment to dispose of all hazardous waste on the eBART property.

Hazardous Waste Management

BART System Safety is responsible for hazardous waste management, whereas eBART relies on the District's Environmental Compliance group to ensure compliance on eBART property. The System Safety Department or the Environment Compliance group studies the current state and federal laws pertaining to hazardous waste management and keeps the affected departments informed as to the correct interpretation of these laws. The System Safety Department or the Environment Compliance group provide these departments with recommendations and guidelines in order for these departments to remain in compliance. The handling of hazardous wastes within the District is audited by the System Safety Department to ensure compliance with applicable laws.

The System Safety Department or the Environment Compliance group manage the disposal process of hazardous waste generated by District operations and develops procedures for the departments that handle and generate these wastes.

The System Safety Department or the Environment Compliance group perform site assessments for existing hazardous material contamination of the real estate being purchased by the District. The System Safety Department or the Environment Compliance group develop the mitigation plans for any such hazardous materials found, and in selected instances, administer the contract for contamination mitigation.

8.2.2 OAC

The OAC hazardous materials program addresses the storage, handling, approval, and use of hazardous materials. It is part of the O&M Manual. A hazardous material is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a substantial hazard to human health or the environment when incorrectly used, purposefully released, or accidentally spilled. Safety Data Sheets (SDS) for all hazardous materials shall be maintained by the Operator's Safety Coordinator.

The designated O&M Manager shall perform a Hazardous Materials and Environmental Impact Review as related to the APM system. This effort will be closely coordinated with the safety representatives of the District and the Safety and Security Review Committee (SSRC).

The review shall verify that elements pertaining to local, state, and federal law are adequately incorporated into the program. Procedures and checklists pertaining to Hazardous Materials and Environmental Impact shall be reviewed, updated, and developed as necessary by the O&M Manager for conformance with this PTASP. This review shall be performed at least annually.

8.3 Roadway Worker Protection (RWP) Program

The District has developed and implemented the Roadway Worker Protection Program in compliance with CPUC G.O. 175 requiring a comprehensive set of safety requirements for wayside workers. The District has implemented a wayside program that includes more restrictive operating rules on wayside activities and procedures for how these activities should be performed by District wayside workers and contractors. The program's goal is to provide improved protection for employees in the right-of-way

(ROW) and protect these workers from the danger of being struck by trains or other on-track equipment.

A training/recertification program on RWP has been established to provide training and recertification to all roadway workers. Any roadway worker who is not trained in these procedures or who is not current in recertification must not be allowed to work/occupy, unescorted, in the right-of-way and must be removed from site immediately. Roadway workers and escorted personnel must attend a job safety briefing when the work begins, when work changes, when work becomes confusing or when a rule violation is observed.

BART, eBART, and OAC management staff must conduct Operations Safety Compliance field inspections to verify roadway workers working in the ROW have their current training/recertification or are properly escorted and to verify compliance with job safety briefing requirements.

Roadway workers must perform an inspection of tools and equipment, including safety personal protective equipment (PPE) prior to entry into work area.

BART, eBART, and OAC managements have established a process for reporting unsafe conditions/hazards or near-miss incidents.

8.4 Safety Communication

8.4.1 Proactive Safety Messages

The System Safety Department works with Operations departments to communicate proactive messages and to participate in the departments' own activities. For example, shop tailgate safety meetings are attended by System Safety staff to present and disseminate safety information. Tailgate safety meeting records may be reviewed to ensure that: the appropriate District employees have attended these meetings with the appropriate frequency and the appropriate safety topics are being presented. In addition, the Safety Department publishes a Safety Rule of the Week to refresh personnel on requirements or focus on recent problem areas. System Safety Department personnel participates in the following activities to communicate safety messages to frontline employees:

- Safety Message in monthly BART Employee Newsletter "Frontline with Ops"
- Participation in Tailgate Safety Meetings
- Participation in Local Safety Committee Meetings and JUMHSC Meetings, where safety risk reporting and resolution are communicated back to personnel (see sections 5.5 and 6.0 for details)
- Safety Meetings with Training Professional groups
- The new SMS manager will be expected to develop an SMS newsletter and additional programs enhancing safety communication for all rail modes

In addition, steps taken to analyze and/or mitigate hazards identified by front-line personnel should be reported back to the personnel through the safety committees and other methods through which they were raised identified in Sections 5.5 and 6.1 of this PTASP. Employees are also encouraged to report safety concerns using the BART SMS Card described in Section 5.5 of the PTASP.

8.4.2 Working on or Near District-Controlled Property

Job site inspections are conducted to ensure compliance with applicable environmental, health, and safety regulations, and District rules and procedures during construction. Findings and recommendations are issued to the contractor for all observed regulatory violations. A Safety Engineer may review the contractor's accident/injury reports and the Tailgate Safety Meeting reports.

Meetings are held with BART Engineers and construction contractors when construction is to be performed within or near the train operating envelope. The construction methods, heavy equipment to be used, schedules, and precautions to be taken are discussed. These meetings are intended to determine if a threat is posed to trains or contract employees operating near the construction site. If such hazards are determined to exist, the Safety Engineer, BART Engineer and contractor will develop construction strategies to mitigate the hazard.

The Contractor shall hold weekly "tool box" meetings to discuss safe work practices or other safety-related topics. The BART Resident Engineer may attend these meetings to verify the contractor's compliance.

Site-Specific Work Plan (SSWP): A Site-Specific Work Plan (SSWP) is to be submitted by the Contractor anytime construction is to be done within the operating envelope. To ensure safe working conditions for the contractor and BART employees, the Engineering Safety staff reviews contract provisions governing performance of Contractors' work on BART and eBART property and reviews the SSWP for work that could affect the safety of the operating envelope. Engineering Safety staff receives a copy of the SSWP from the Resident Engineer, reviews and comments on the document, then recommends for System Safety Department Manager's approval. OAC hires a subcontract to perform its work and on the guideway and grounds (e.g., painting, landscape maintenance, etc.). The OAC Operator is responsible for this process.

Interim Operating Plan (IOP): An Interim Operating Plan (IOP) is a plan for the continued operation of BART trains through an area(s) affected by an approved SSWP(s). IOP shall include a schedule of events and responsibilities required to remove one or more tracks from service, impact of track(s), and/or provide alternative service. The plan shall also include strategies to minimize impact on revenue service and describe how normal revenue service is to be restored. To ensure safe working conditions for the contractor and BART employees, the Engineering Safety staff reviews the IOP for work that could affect the safety of the operating envelope. Also, as deemed necessary, Engineering Safety staff performs construction site inspection of work near or on the operating system.

Contractor's Compliance with Required Safety Programs

The contract specifications stipulate that each contractor is responsible for setting up and maintaining a safety program. At the start of a project, the contractor shall be required to submit a copy of their detailed site-specific safety program for review. For BART and eBART, the Contractor Safety Program Plan shall be reviewed by the Resident Engineer and BART System Safety for compliance with the contract specifications, District Operations Rules and Procedures (OR&P) Manual, and applicable regulations and code requirements. With the exception of major capital projects, OAC contracted work must be reviewed by the Operator for compliance with OAC contract specifications. The contractor is responsible for CAL/OSHA compliance and overall construction safety of its contractors and employees; while BART Project Management is responsible for providing a work environment safe from operational

hazards from the operating system. The contractor's on-site health and safety representative's resume shall be reviewed and approved by the Resident Engineer and BART System Safety. Detailed Construction Safety Specification can be found in BFS Specification Section 01 35 24.

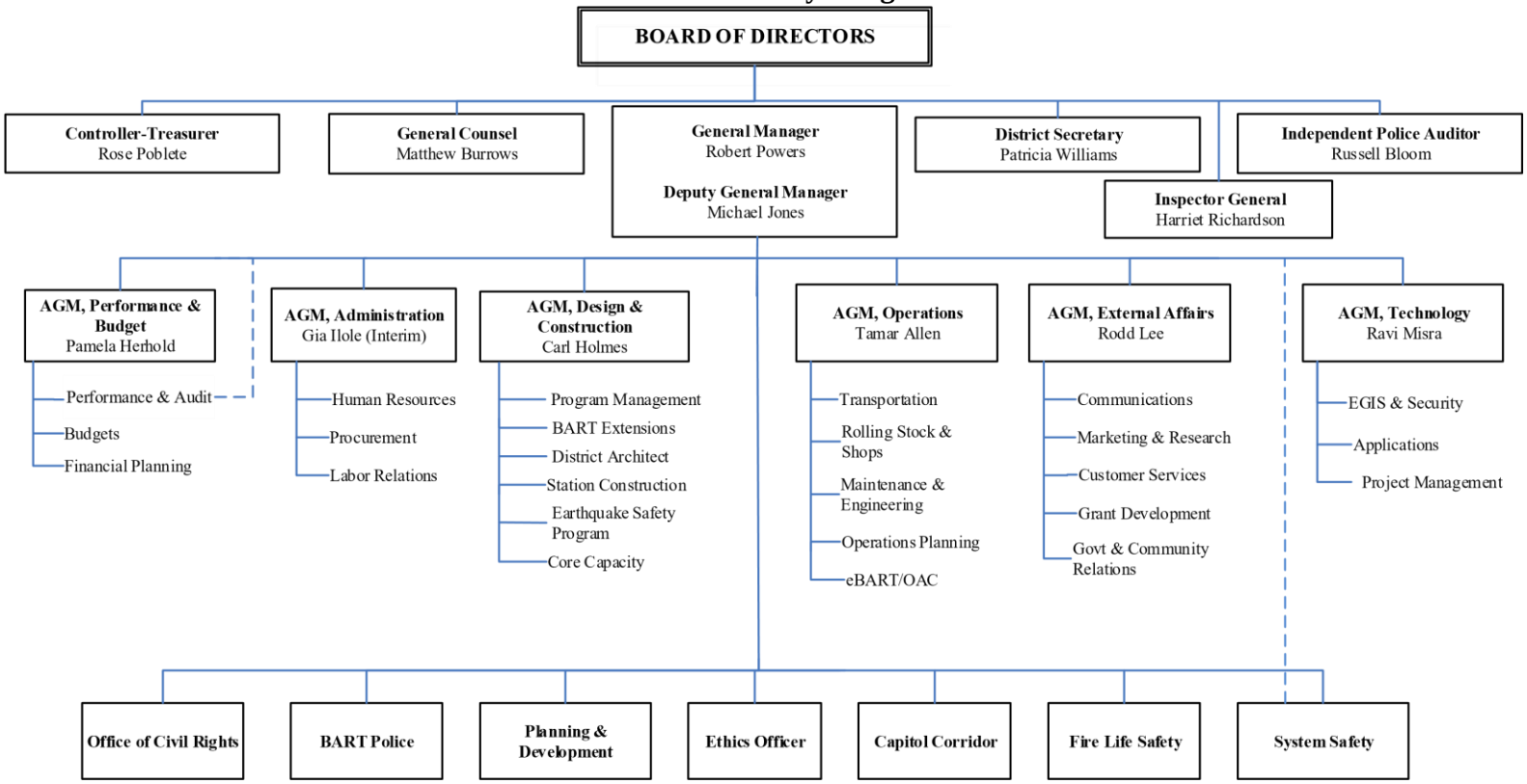
The System Safety Department is responsible for general plan review, review and approval of the contractor safety program plan, contractor's site-specific work plans, witnessing of safety-related tests (as needed) and compliance with OR&P Manual. The System Safety Department is responsible for review of project documentation and contractor job tasks to ensure minimal risk to BART employees and patrons and minimal impact to BART operations. System Safety Department may review contractor's accident/injury reports, the Tailgate Safety Meeting reports and corrective action plan of any violations.

BART & Contractor Training Requirements for Conducting Investigations

BART requires that any personnel or contractors working on behalf of BART conducting investigations have received appropriate training in accordance with the Public Transportation Safety Certification Program, which presently includes the Transit Safety and Security Program (TSSP) certification (excluding Transit System Security) plus SMS coursework. This is in accordance with BART's requirements for its own personnel directly responsible for administering safety programs under 49 CFR Part 672. Such personnel will also complete RWP training if track access is necessary.

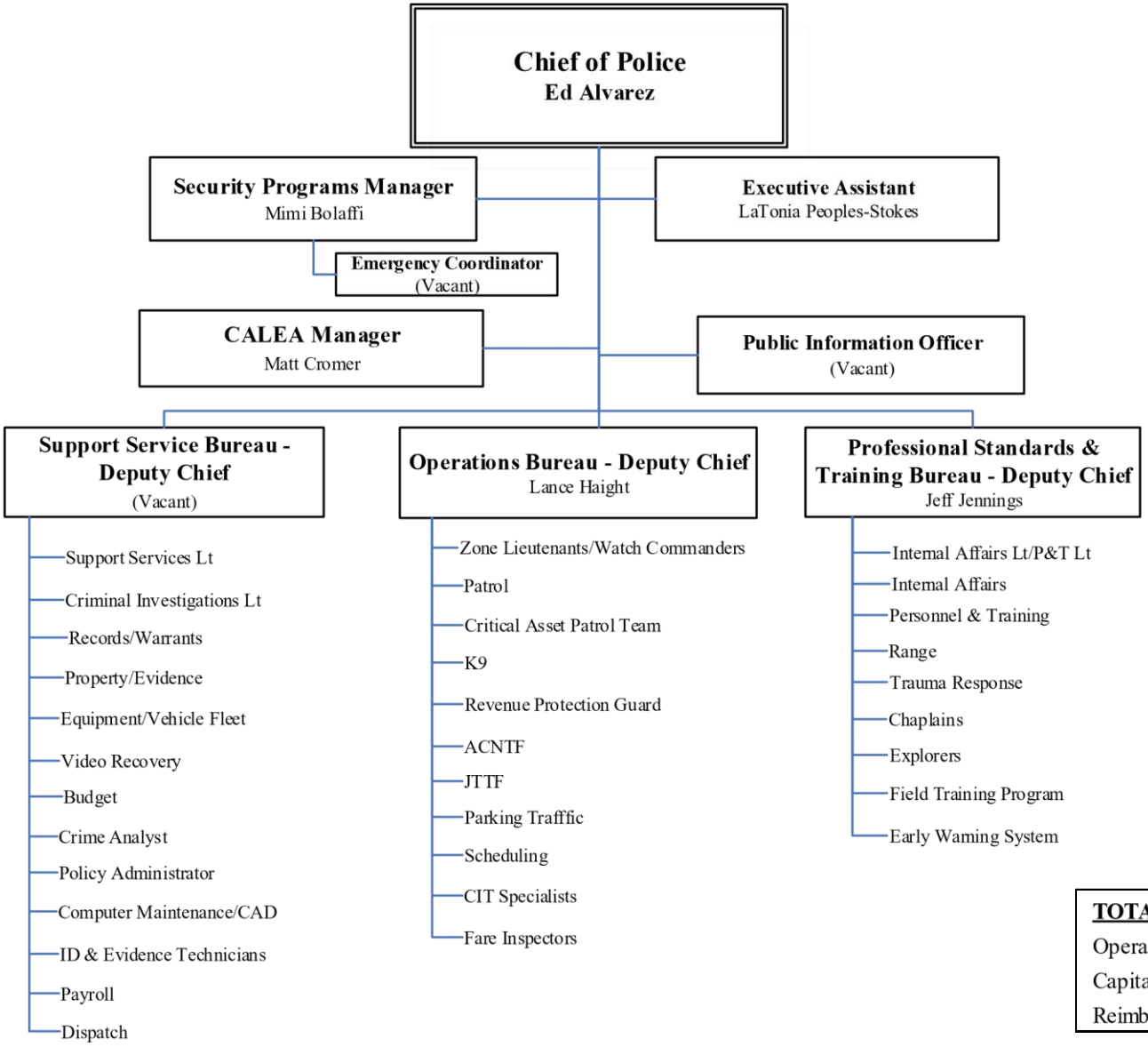
Appendix A: Organization Charts

SAN FRANCISCO BAY AREA RAPID TRANSIT
ORGANIZATION CHART
FY21 Preliminary Budget



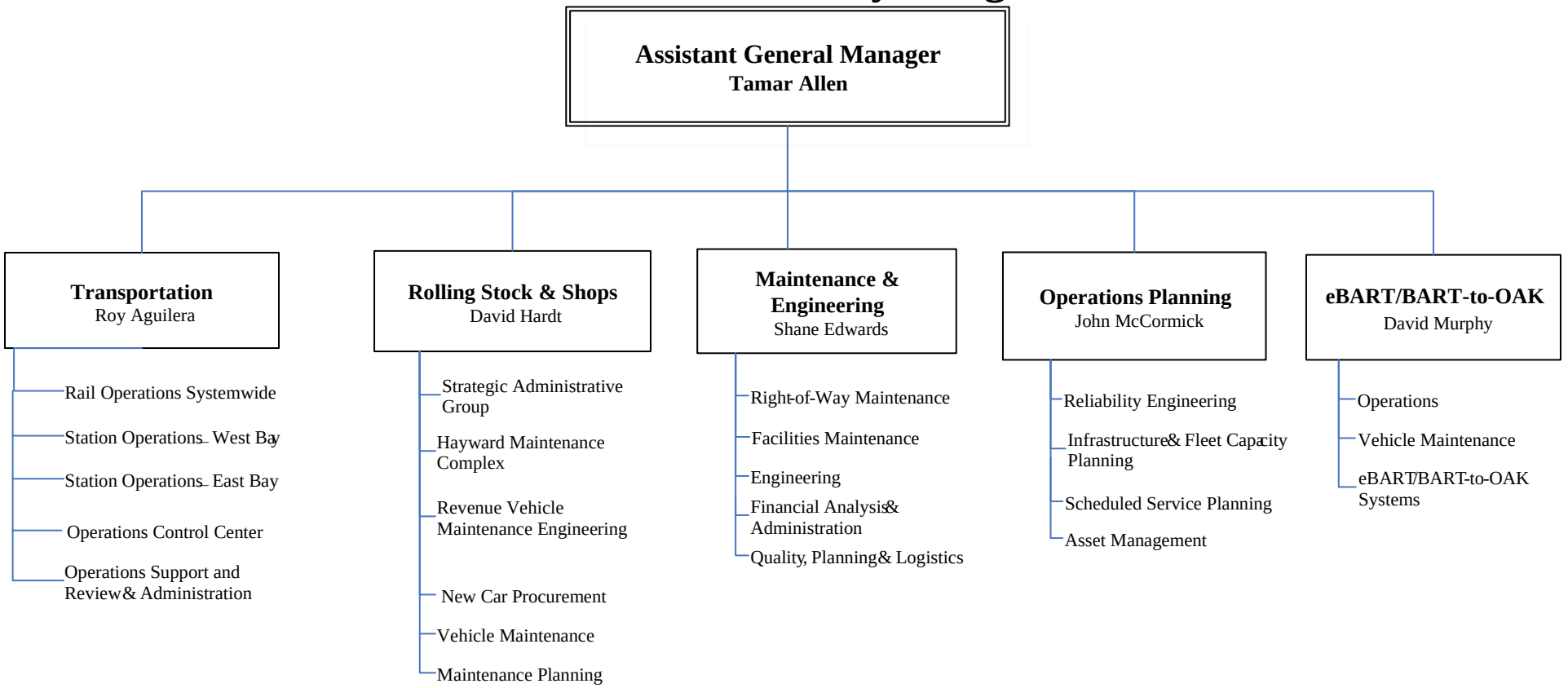
	Total	Allocation	Net
Operating	3,653.6	-	3,653.6
Capital	1,350.3	-	1,350.3
Reimbursable	46.5	-	46.5

POLICE DEPARTMENT - 07
FY21 Preliminary Budget



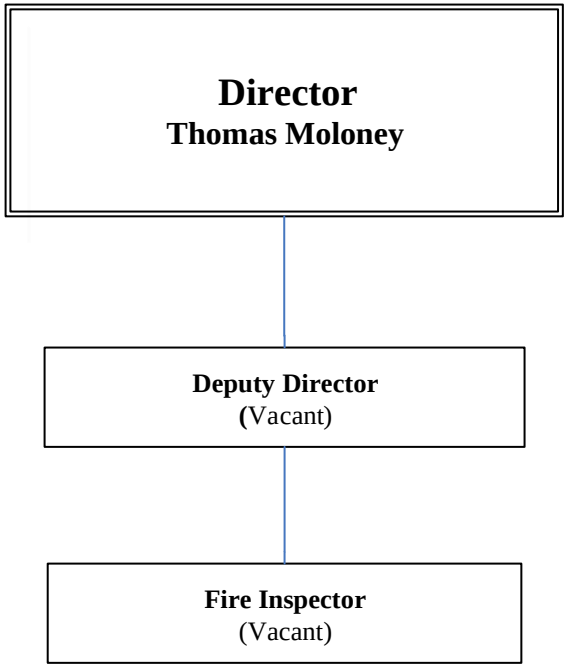
TOTAL HEADCOUNT	
Operating	415.0
Capital	3.0
Reimbursable	-

OPERATIONS OFFICE - 08
FY21 Preliminary Budget



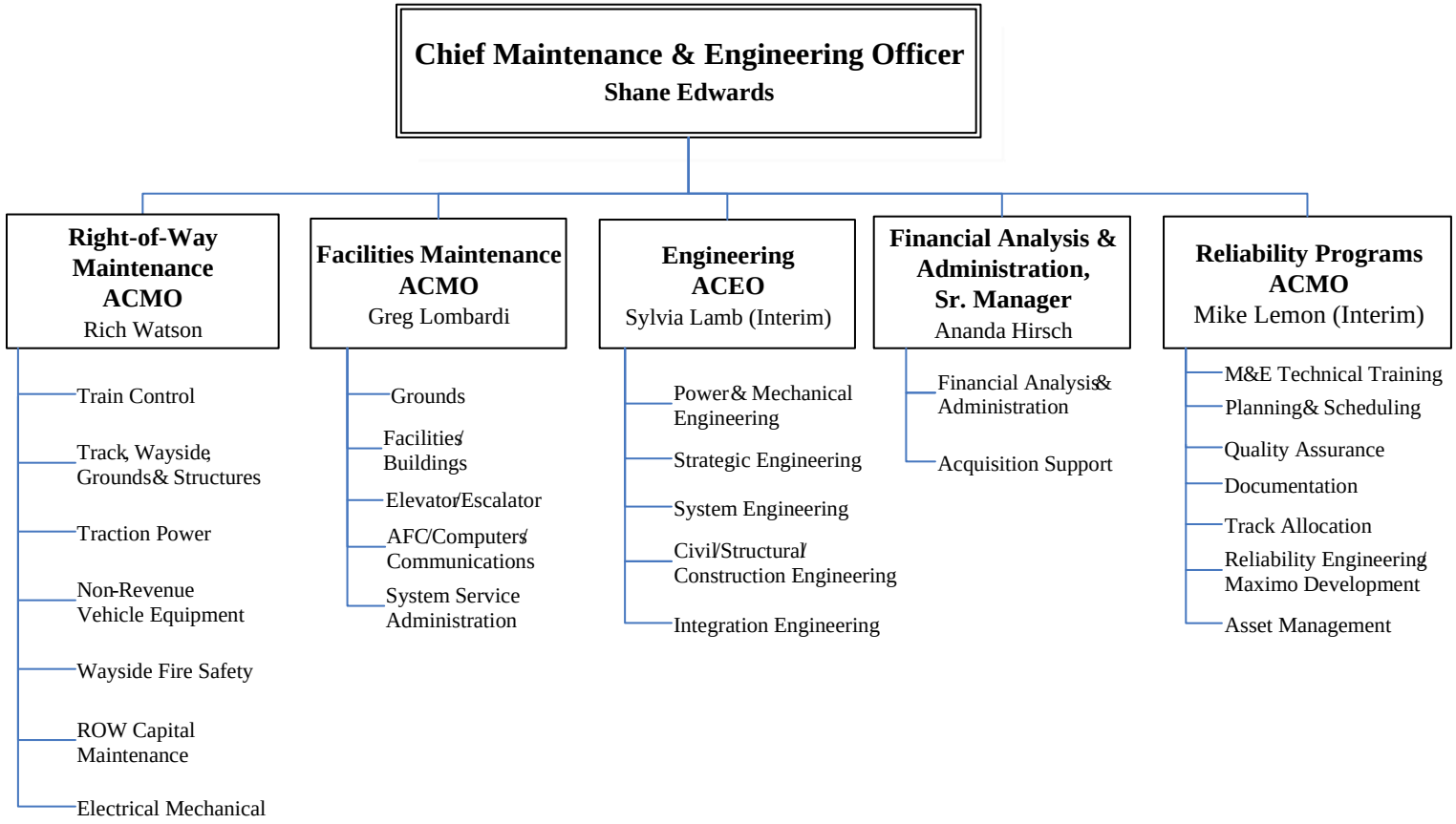
TOTAL HEADCOUNT	
Operating	2,722.2
Capital	1,176.9
Reimbursable	14.0

FIRE LIFE SAFETY – 0103
FY21 Preliminary Budget



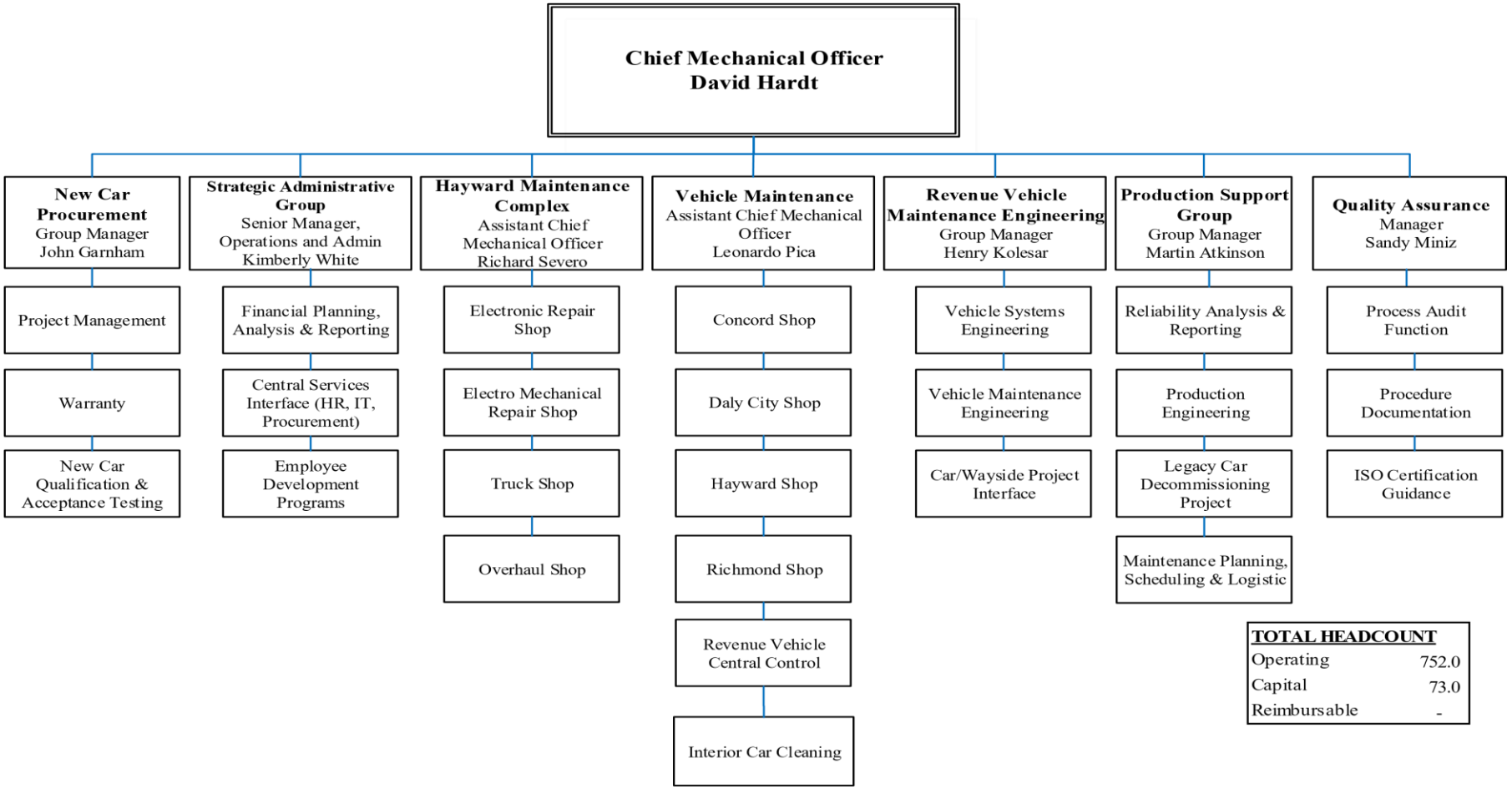
TOTAL HEADCOUNT	
Operating	2.0
Capital	1.0
Reimbursable	-

MAINTENANCE & ENGINEERING - 0802
FY21 Preliminary Budget

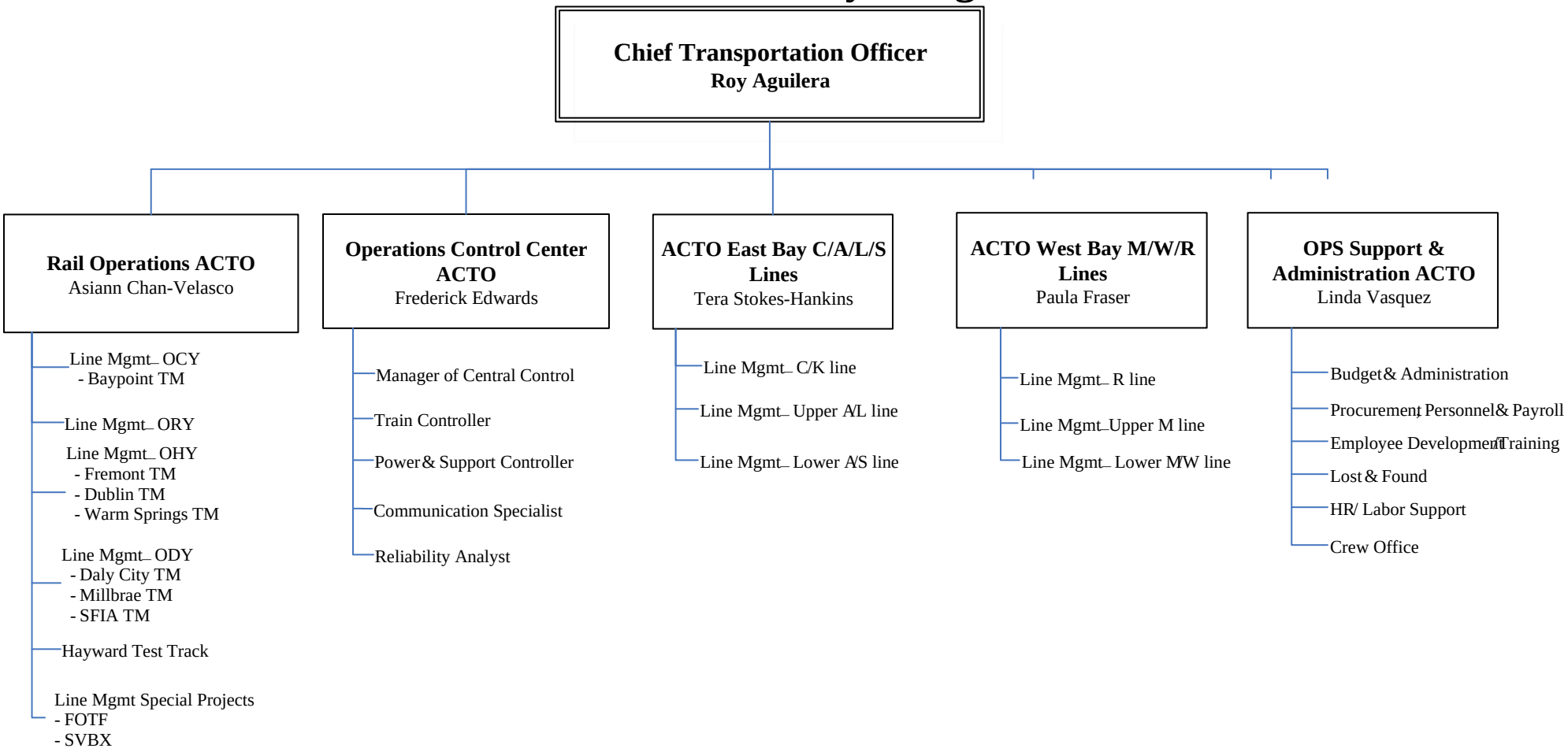


TOTAL HEADCOUNT	
Operating	833.9
Capital	1,088.1
Reimbursable	14.0

ROLLING STOCK & SHOPS - 0803
FY21 Preliminary Budget

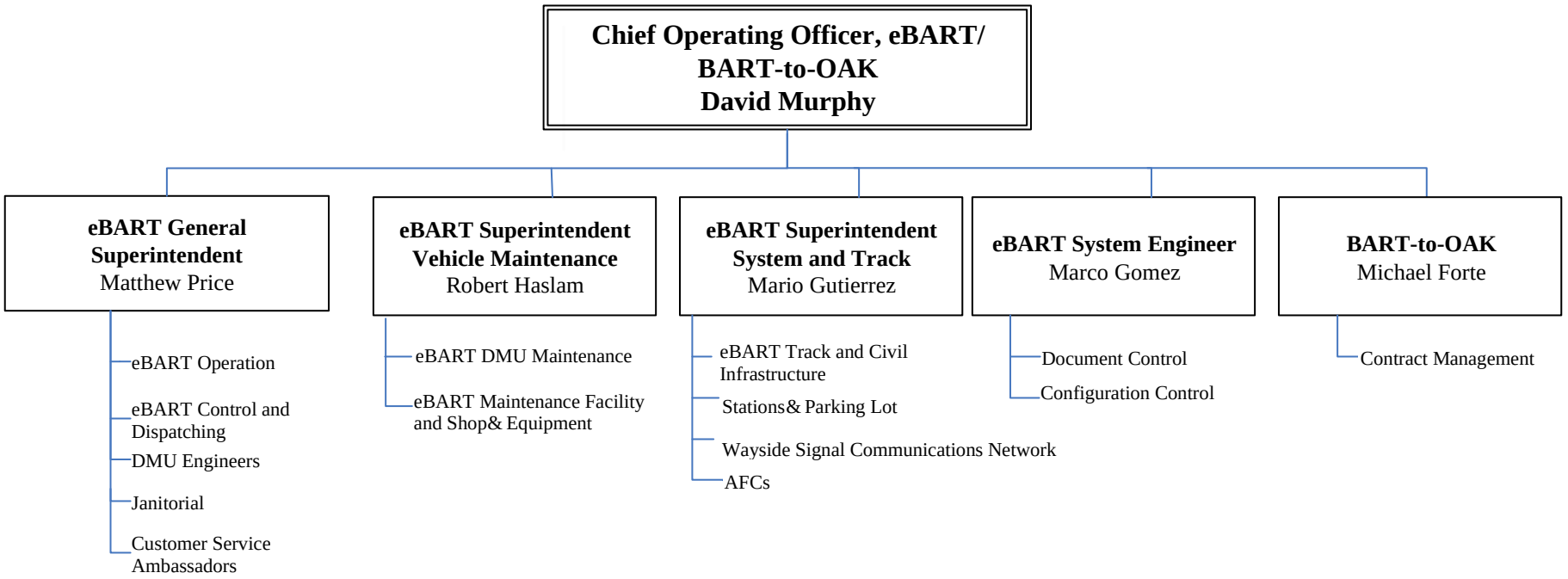


TRANSPORTATION - 0805
FY21 Preliminary Budget



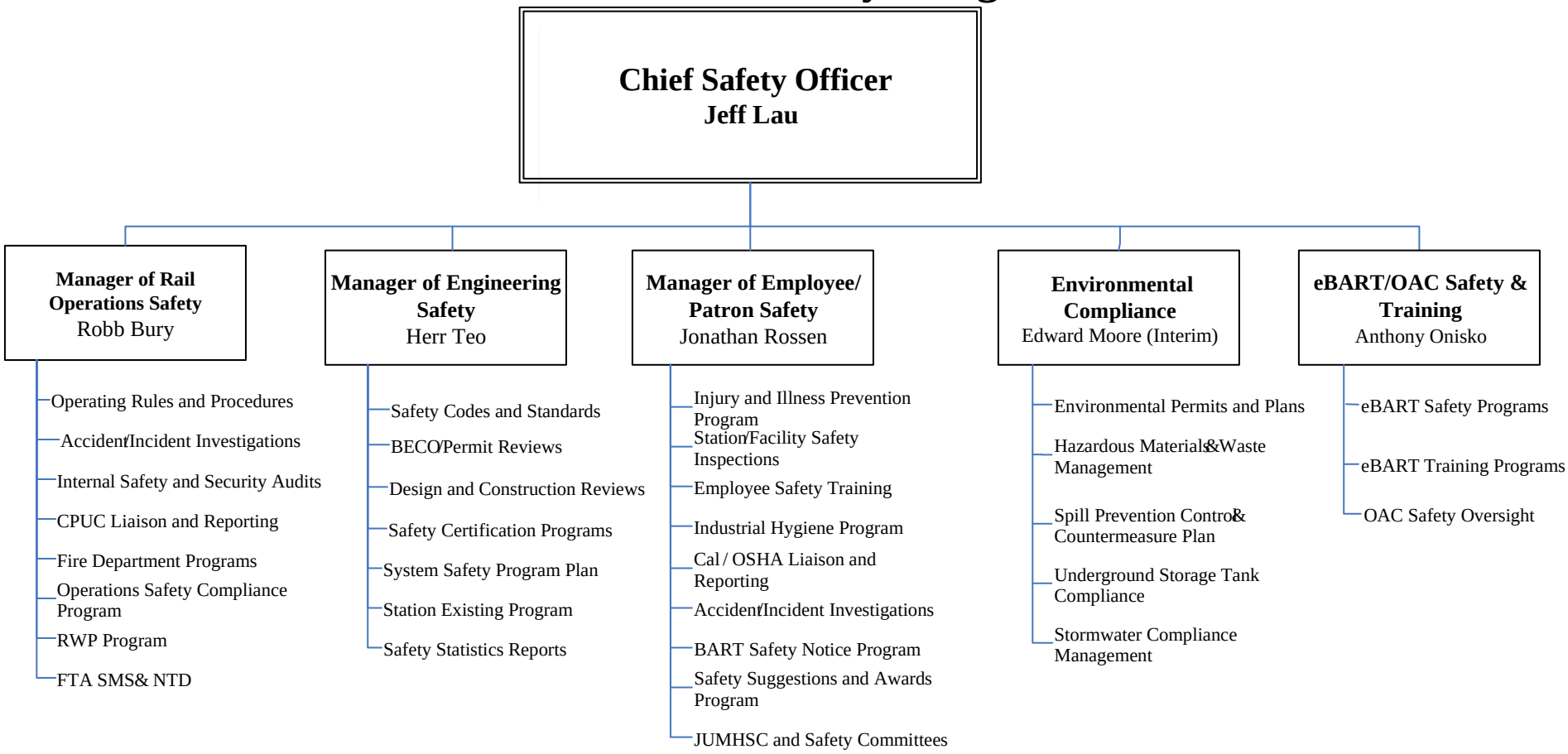
TOTAL HEADCOUNT	
Operating	1,0363.0
Capital	6.8
Reimbursable	-

EBART/BART-TO-OAK - 0807
FY21 Preliminary Budget



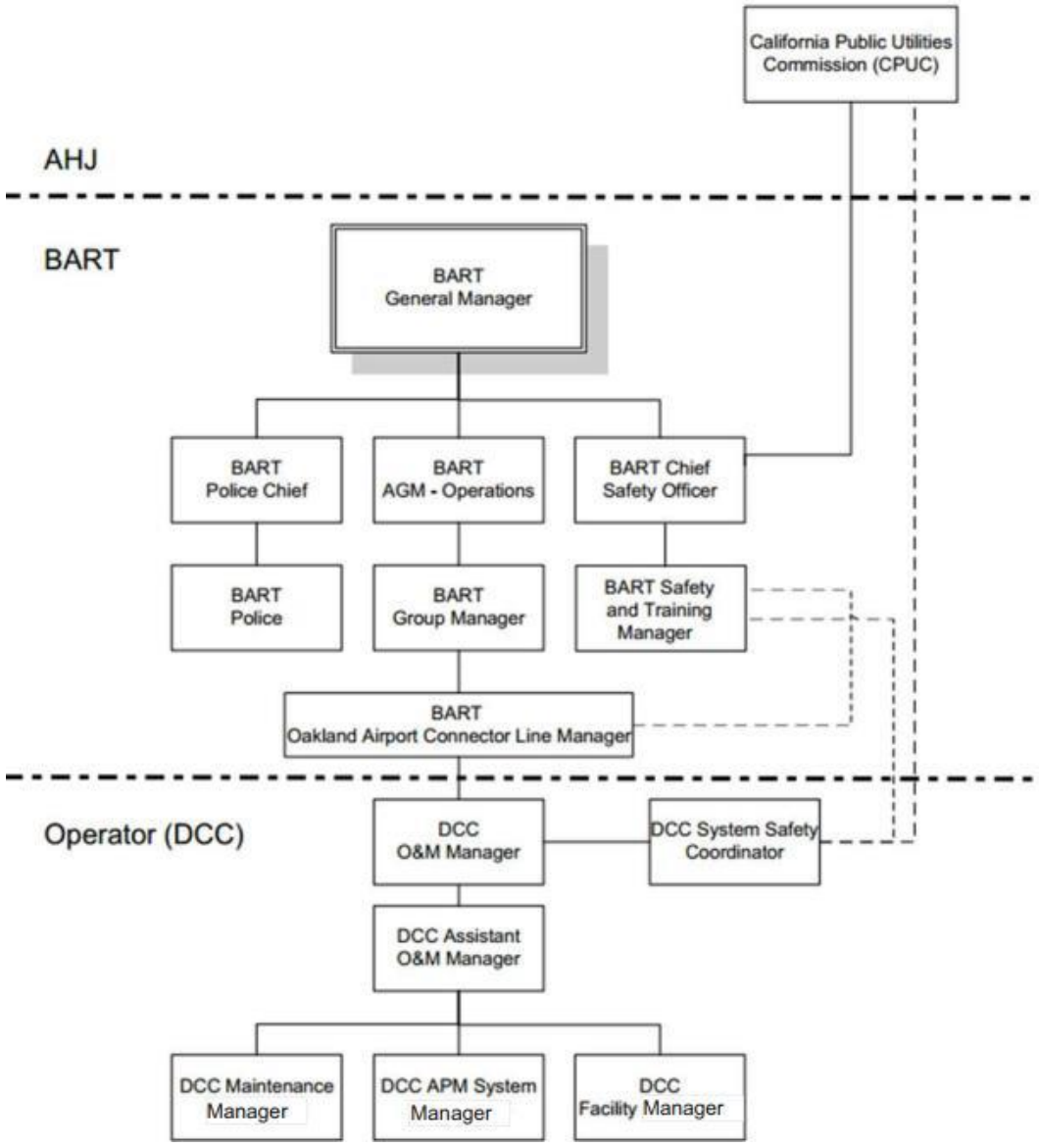
TOTAL HEADCOUNT	
Operating	73.0
Capital	-
Reimbursable	-

SYSTEM SAFETY – 1303
FY21 Preliminary Budget



TOTAL HEADCOUNT	
Operating	17.0
Capital	6.0
Reimbursable	-

BART OAKLAND AIRPORT CONNECTOR ORGANIZATION



Appendix B: Definitions

As used in 49 CFR Part 673:

Accident means an Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision of public transportation vehicles; a runaway train; an evacuation for life safety reasons; or any derailment of a rail transit vehicle, at any location, at any time, whatever the cause.

Accountable Executive means a single, identifiable person who has ultimate responsibility for carrying out the Public Transportation Agency Safety Plan of a public transportation agency; responsibility for carrying out the agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the agency's Public Transportation Agency Safety Plan, in accordance with 49 U.S.C. 5329(D), and the agency's Transit Asset Management Plan in accordance with 49 U.S.C. 5326.

Chief Safety Officer means an adequately trained individual who has responsibility for safety and reports directly to a transit agency's chief executive officer, general manager, president, or equivalent officer. A Chief Safety Officer may not serve in other operational or maintenance capacities, unless the Chief Safety Officer is employed by a transit agency that is a small public transportation provider as defined in this part, or a public transportation provider that does not operate a rail fixed guideway public transportation system.

Equivalent Authority means an entity that carries out duties similar to that of a Board of Directors, for a recipient or subrecipient of FTA funds under 49 U.S.C. Chapter 53, including sufficient authority to review and approve a recipient or subrecipient's Public Transportation Agency Safety Plan.
Event means any Accident, Incident, or Occurrence.

FTA means the Federal Transit Administration, an operating administration within the United States Department of Transportation.

Hazard means any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.

Incident means an event that involves any of the following: A personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency.

Investigation means the process of determining the causal and contributing factors of an accident, incident, or hazard, for the purpose of preventing recurrence and mitigating risk.

National Public Transportation Safety Plan means the plan to improve the safety of all public transportation systems that receive Federal financial assistance under 49 U.S.C. Chapter 53.

Occurrence means an Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of a transit agency.
Operator of a public transportation system means a provider of public transportation as defined under 49 U.S.C. 5302(14).

Performance measure means an expression based on a quantifiable indicator of performance or condition that is used to establish targets and to assess progress toward meeting the established targets.

Performance target means a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the Federal Transit Administration (FTA).

Public Transportation Agency Safety Plan means the documented comprehensive agency safety plan for a transit agency that is required by 49 U.S.C. 5329 and this part.

Rail fixed guideway public transportation system means any fixed guideway system that uses rail, is operated for public transportation, is within the jurisdiction of a State, and is not subject to the jurisdiction of the Federal Railroad Administration, or any such system in engineering or construction. Rail fixed guideway public transportation systems include but are not limited to rapid rail, heavy rail, light rail, monorail, trolley, inclined plane, funicular, and automated guideway.

Rail transit agency means any entity that provides services on a rail fixed guideway public transportation system.

Risk means the composite of predicted severity and likelihood of the potential effect of a hazard.

Risk mitigation means a method or methods to eliminate or reduce the effects of hazards.

Safety Assurance means processes within a transit agency's Safety Management System that functions to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

Safety Management Policy means a transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees in regard to safety.

Safety Management System (SMS) means the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency’s safety risk mitigation. SMS includes systematic procedures, practices, and policies for managing risk and hazards.

Safety Management System (SMS) Executive means a Chief Safety Officer or an equivalent.

Safety performance target means a Performance Target related to safety management activities.

Safety Promotion means a combination of training and communication of safety information to support SMS as applied to the transit agency’s public transportation system.

Safety risk assessment means the formal activity whereby a transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.

Safety Risk Management means a process within a transit agency's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.

Serious injury means any injury which:

1. Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received;
2. Results in a fracture of a bone (except simple fractures of fingers, toes, or noses);
3. Causes severe hemorrhages, nerve, muscle, or tendon damage;
4. Involves any internal organ; or
5. Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Small public transportation provider means a recipient or subrecipient of Federal financial assistance under 49 U.S.C. 5307 that has one hundred (100) or fewer vehicles in peak revenue service and does not operate a rail fixed guideway public transportation system.

State means a State of the United States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, Guam, American Samoa, and the Virgin Islands.

State of good repair means the condition in which a capital asset is able to operate at a full level of performance.

State Safety Oversight Agency means an agency established by a State that meets the requirements and performs the functions specified by 49 U.S.C. 5329(E) and the regulations set forth in 49 CFR Part 674.

Transit agency means an operator of a public transportation system.

Transit Asset Management Plan means the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assts to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation, as required by 49 U.S.C. 5326 and 49 CFR Part 625.

Appendix C: Acronyms

As used throughout the District PTASP:

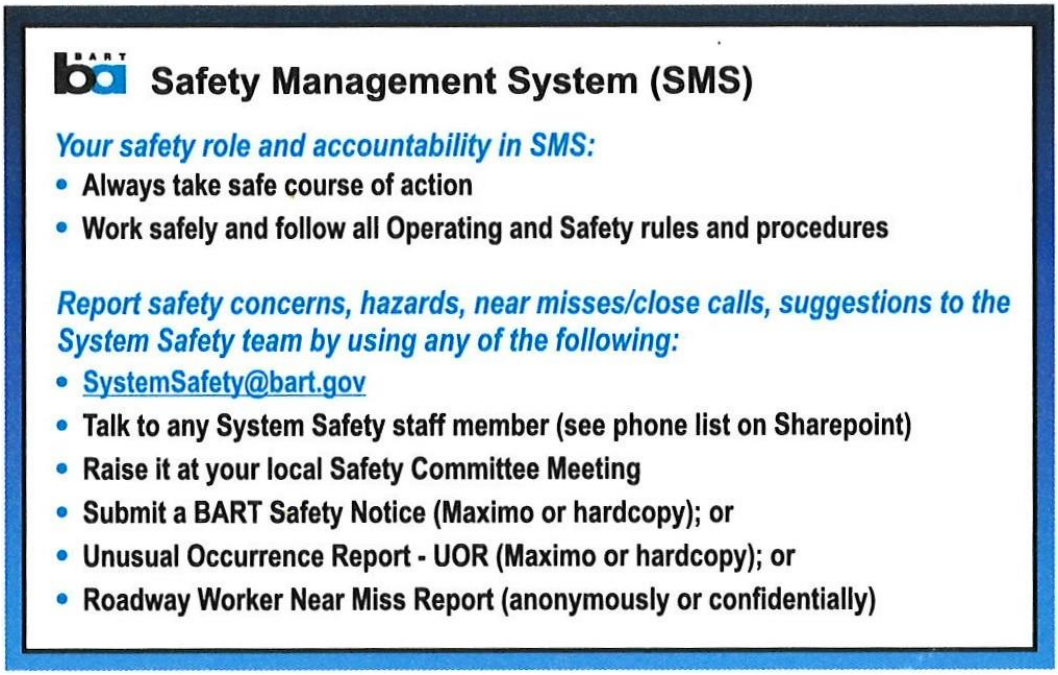
A	
ADA	Americans with Disabilities Act of 1990
AFC	Automatic Fare Collection
AFSCME	American Federation of State, County and Municipal Employees
AGT	Automated Guideway Transit
APM	Automated People Mover
ASCE	American Society of Civil Engineers
ATC	Automatic Train Control
ATP	Automated Train Protection
ATU	Amalgamated Transit Union
B	
BART	Bay Area Rapid Transit
BECO	BART Engineering Change Order
BPMA	BART Police Management Association
BPOA	BART Police Officers Association
BSN	BART Safety Notice
C	
Cal/OSHA	California Division of Occupation Safety and Health
CAP	Corrective Action Plan
CBTC	Communications-Based Train Control
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
CRS	Component Repair Shop
CSO	Chief Safety Officer
D	
DCC	Doppelmayr Cable Car
DMU	Diesel Multiple Unit
E	
eBART	East Contra Costa County Transit
eCOR	eBART Code of Operating Rules
ECP	Employee Certification Plan
EIC	Employee in Charge
eMF	eBART Maintenance Facility
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ESP	Earthquake Safety Program
F	
FLC	Fire Liaison Committee
FLSC	Fire Life Safety Committee
FPJV	Flatiron and Parsons
FTA	Federal Transit Administration
G	
G.O.	General Order

H	
HMC	Hayward Maintenance Complex
HVTM	Hazard Vulnerability Tracking Matrix
I	
ICS	Incident Command System
IIPP	Injury and Illness Prevention Program
IOP	Interim Operating Plan
ISSA	Internal Safety and Security Audit
ISSAP	Internal Safety and Security Audit Process
J	
JUMHSC	Joint Union/Management Health and Safety Committee
K	
KPI	Key Performance Indicator
L	
LMA	Lake Merritt Administration
M	
MARIS	Maintenance and Reliability Information System
M&E	Maintenance and Engineering
MMIS	Maintenance Management Information System
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MVDD	Maintenance Vehicle Detection Devices
N	
NIMS	National Incident Management System
NPTSP	National Public Transportation Safety Plan
NTD	National Transit Database
NTIS	National Technical Information Service
NTSB	National Transportation Safety Board
NVP	New Vehicle Procurement
O	
OAC	Oakland Airport Connector
OCC	Operations Control Center
OEM	Original Equipment Manufacturer
OES	Office of Emergency Services
O&M	Operations and Maintenance
OR&P	Operating Rules and Procedures
OSCP	Operations Safety Compliance Program Plan
P	
PBTB	Parsons-Brinckerhoff-Tudor-Bechtel
PHA	Preliminary Hazard Analysis
PIO	Public Information Officer
PPE	Personal Protective Equipment
PTASP	Public Transportation Agency Safety Plan
R	
RAC	Risk Assessment Code
ROW	Right of Way

RS&S	Rolling Stock and Shops
RWP	Roadway Worker Protection
S	
SDS	Safety Data Sheet
SEIU	Service Employees International Union
SFO	San Francisco Airport
SMS	Safety Management System
SPM	Safety Performance Measure
SPT	Safety Performance Target
SMS	Safety Management System
SR4	State Route 4
SSCP	Safety and Security Certification Program
SSCVR	Security Certification Verification Report
SSO	State Safety Oversight
SSOA	State Safety Oversight Agency
SSP	System Security Plan
SSPP	System Safety Program Plan
SSRC	Safety and Security Review Committee
SSWP	Site-Specific Work Plan
SVRT	Silicon Valley Rapid Transit
SVBX	Silicon Valley Berryessa Extension
T	
TAM	Transit Asset Management
TBT	Transbay Tube
TSA	Transportation Security Administration
TSSP	Transit Safety and Security Program
U	
UOR	Unusual Occurrence Report
USC	United States Code
V	
VME	Vehicle Maintenance Engineering
VRM	Vehicle Revenue Miles
VSE	Vehicle Systems Engineering
VTA	Valley Transportation Authority
W	
WSX	Warm Springs Extension

Appendix D: Safety Management System Card

Front of SMS Card:



Safety Management System (SMS)

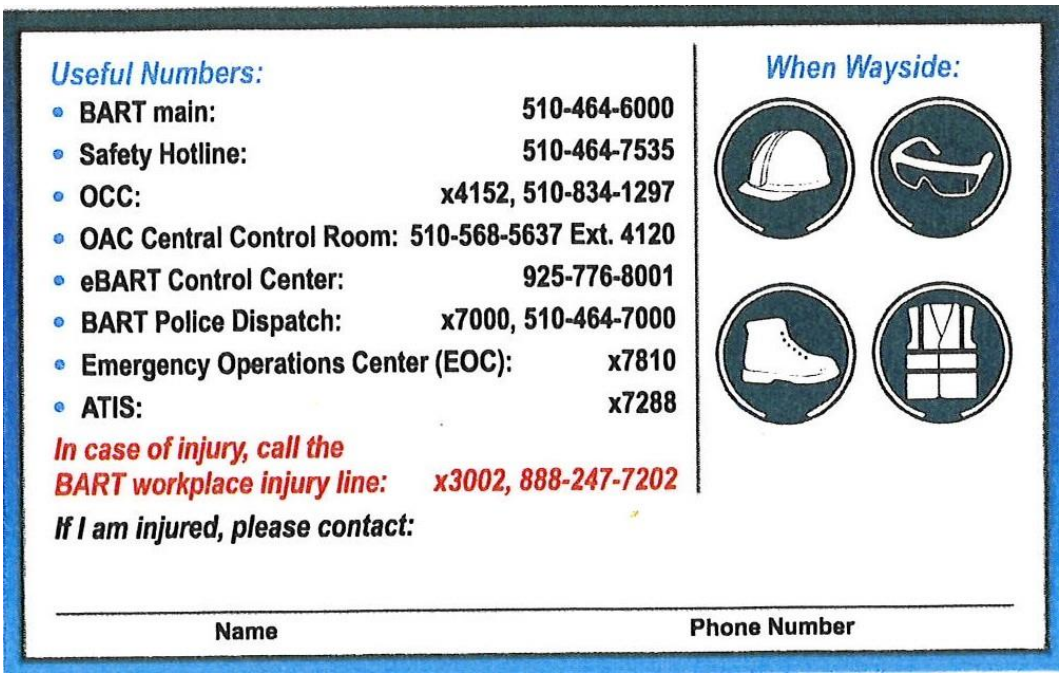
Your safety role and accountability in SMS:

- Always take safe course of action
- Work safely and follow all Operating and Safety rules and procedures

Report safety concerns, hazards, near misses/close calls, suggestions to the System Safety team by using any of the following:

- SystemSafety@bart.gov
- Talk to any System Safety staff member (see phone list on Sharepoint)
- Raise it at your local Safety Committee Meeting
- Submit a BART Safety Notice (Maximo or hardcopy); or
- Unusual Occurrence Report - UOR (Maximo or hardcopy); or
- Roadway Worker Near Miss Report (anonymously or confidentially)

Back of SMS Card:



Useful Numbers:

- BART main: 510-464-6000
- Safety Hotline: 510-464-7535
- OCC: x4152, 510-834-1297
- OAC Central Control Room: 510-568-5637 Ext. 4120
- eBART Control Center: 925-776-8001
- BART Police Dispatch: x7000, 510-464-7000
- Emergency Operations Center (EOC): x7810
- ATIS: x7288

In case of injury, call the BART workplace injury line: x3002, 888-247-7202

When Wayside:

If I am injured, please contact:

Name Phone Number

Appendix E: FTA PTASP Compliance Checklists

Date of Plan: February 2020
Date of Review Completion: February 2020
Approval Status: Draft Unsubmitted

#	CHECKLIST ITEM	673 PLAN REQUIREMENTS The plan must contain or provide for the following:	INCLUDED Yes — No	PAGE REF.
1.0	General Requirements	○ Signed by accountable executive and approved by the agency's Board of Directors or an Equivalent Authority. 673.11(A)(1)	**YES**	**Cover Page**
		○ Document the processes and activities related to SMS Implementation. 673.11(A)(2)	**YES**	**5.2.3**
		○ Include performance targets based on the safety performance measures established under the National Public Transportation Safety Plan. 673.11(A)(3)	**YES**	**4.0**
		○ Establish a process and timeline for conducting an annual review and update of the PTASP. 673.11(A)(5)	**YES**	**3.2.1**
		○ Include or incorporate by reference in the PTASP an emergency preparedness and response plan or procedures that addresses, at a minimum, the assignment of employee responsibilities during an emergency and coordination with Federal, State, regional, and local officials with role sand responsibilities for emergency preparedness and response in the transit agency's service area. 673.11(A)(6)	**YES**	**5.3**
1.1	**Safety Management Policy**	○ Establish organization accountabilities and responsibilities and have a statement of safety management policy including safety objectives. 673.23(A)	**YES**	**1.0**
		○ The policy must be communicated throughout the organization. 673.23(C)	**YES**	**5.4**
		○ Establish the necessary authorities, accountabilities, and responsibilities for the management of safety among the key safety roles within the organization 673.23(D)	**YES**	**2.3**
1.2	Employee Safety Reporting	○ Establish and implement a process that allows employees to report safety conditions to senior management, protections for employees who report safety conditions to senior management, and a description of employee behaviors that may result in disciplinary action. 673.23(B)	**YES**	**5.5**
1.3	Accountable Executive	○ Identify an accountable executive, accountable for ensuring that the agency's SMS is effectively implemented throughout the agency's public transportation system. 673.23(1)	**YES**	**2.3.1**
		○ Accountable for ensuring action is taken, as necessary to address substandard performance in the agency's SMS.		
1.4		○ Accountable executive must designate a CSO or SMS Executive who has the authority and responsibility for day-to-day implementation and operations of an agency's SMS. 673.23(2)	**YES**	**2.3.3**

#	CHECKLIST ITEM	673 PLAN REQUIREMENTS The plan must contain or provide for the following:	INCLUDED Yes — No	PAGE REF.
	Chief Safety Officer (CSO) or SMS Executive	○ Must hold a direct line of reporting to the Accountable Executive, and may be the same individual.		
		○ Must be solely dedicated to this function and may not serve in other operational or maintenance capacities		
1.5	Agency Leadership and Executive Management	○ Identify those members of the leadership or executive management, other than the Accountable Executive, CSO, or SMS Executive, who have authorities or responsibilities for day-to-day implementation and operation of an agency's SMS. 673.23(3)	**YES**	**2.3.4, 2.3.5, 2.3.6, 2.3.7, 2.3.8, 2.3.9, 2.3.10, 2.3.11**
1.6	Key Staff	○ Agency may designate key staff, groups of staff, or committees to support the Accountable Executive, CSO, or SMS Executive in developing, implementing, and operating the agency's SMS. 673.23(4)	**YES**	**2.3, 2.4**
2.1	**Safety Risk Management**	○ Safety Risk Management Process must be developed and implemented for all elements of the public transportation system. 673.25(A)	**YES**	**6.0**
2.2	Safety Hazard Identification	○ Establish methods and process to identify hazards and consequences of the hazards. 673.25(B)(1) ○ A possible source for hazard information is the SSOA and FTA. 673.25(B)(2)	**YES**	**6.1**
2.3	Safety Risk Assessment	○ Establish methods or processes to assess the safety risks associated with identified safety hazards. 673.25(C)(1) ○ Includes an assessment of the likelihood and severity of the consequences of the hazards, including existing mitigations, and prioritization of the hazards based on the safety risk. 673.25(C)(2)	**YES**	**6.2**
2.4	Safety Risk Mitigation	○ Establish methods or processes to identify mitigations or strategies necessary as a result of the safety risk assessment to reduce the likelihood and severity of the consequences. 673.25(D)	**YES**	**6.3**
3.1	**Safety Assurance**: Performance Monitoring and Measurement	○ Develop and implement a safety assurance process including safety performance monitoring and measurement of the following: 673.27(B)	**YES**	**7.0**
		○ compliance with and sufficiency of the agency's procedures for operations and maintenance 673.27(B)(1)	**YES**	**7.1, 7.2, 7.3, 7.4, 7.5, 7.6**
		○ operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended 673.27(B)(2)		**5.5**

#	CHECKLIST ITEM	673 PLAN REQUIREMENTS The plan must contain or provide for the following:	INCLUDED Yes — No	PAGE REF.
		○ information reported through any internal safety reporting programs 673.27(B)(4)		
		○ Conduct investigations of safety events to identify causal factors 673.27(B)(3)	**YES**	**7.4**
3.2	Management of Change	○ Establish a process for identifying and assessing changes that may introduce new hazards or impact the transit agency's performance. 673.27(C)(1) ○ If the agency determines that a change may impact its safety performance, then it must evaluate the proposed change through the Safety Risk Management Process 673.27(C)(2)	**YES**	**7.6**
3.3	Continuous Improvement	○ Establish a process to assess safety performance. 673.27(D)(1) ○ If the agency identifies any deficiencies as part of its safety performance assessment, then the transit agency must develop and carry out, under the direction of the Accountable Executive, a plan to address the identified safety deficiencies. 673.27(D)(2)	**YES**	**7.1, 7.7**
4.1	**Safety Promotion:** Training Program	○ Establish and implement a comprehensive safety training program for all agency employees and contractors directly responsible for safety in the agency's public transportation system and include refresher training as necessary. 673.29(A)	**YES**	**8.0, 8.1**
4.2	Safety Communication	○ Must communicate safety and safety performance information throughout the agency's organization that, at a minimum, conveys information on hazards and safety risks relevant to employees' roles and responsibilities and informs employees of safety actions taken in response to reports submitted through an employee safety reporting program. 673.29(B)	**YES**	**5.5, 6.1, 8.4.1**

FTA 674 Supplemental Checklist Items:			
#	PLAN REQUIREMENTS The plan must contain or provide for the following:	INCLUDED Yes — No	PAGE REF.
Section A. Transit Agency Information:			
A-6	○ Transit agency name and **address.**	**YES**	**Cover Page**
A-2	○ Mode(s) of transit service covered by the ASP (§ 673.11(b)).	**YES**	**2.0**
Section B. Plan Development, Approval, and Updates:			
B-4	○ Certification of compliance with the Program Standard established by the SSOA, including the name of the individual or entity that certifies compliance with the SSOA's Program Standard and date of certification (§ 674.29(a)).	**YES**	**Cover Page**
B-5	○ Process and timeline for conducting an annual review and update of the ASP (§ 673.11(a)(5) and § 674.29(b)), including the ASP version number and other relevant information.	**YES**	**3.2.1**
Section D. Safety Performance Targets			
D-1	○ Fatalities: Total number of reportable fatalities and rate per total vehicle revenue miles, by rail transit mode (National Safety Plan and § 673.11(a)(3)).	**YES**	**4.1**
D-2	○ Injuries: Total number of reportable injuries and rate per total vehicle revenue miles, by rail transit mode (National Safety Plan and § 673.11(a)(3)).		
D-3	○ Safety Events: Total number of reportable events and rate per total vehicle revenue miles, by rail transit mode (National Safety Plan and § 673.11(a)(3)).		
D-4	○ System Reliability: Mean (or average) distance between major mechanical failures, by rail transit mode (National Safety Plan and § 673.11(a)(3)).		
Section G. Safety Risk Management			
G-1	○ Safety Risk Management process for all system elements (§ 673.21(b), § 673.25, and § 674.29(b)).	**YES**	**6.0**
G-2	○ Process for hazard identification including identifying consequences of hazards (§ 673.25(a), § 673.25(b)(1), and § 674.7).	**YES**	**6.1**
G-7	○ Process for safety risk management, with adequate means of risk mitigation (§ 673.25 and § 674.29(b)).	**YES**	**6.2, 6.3**
Section H. Safety Assurance			
H-4-a	○ SSOA requirements for notifying the SSOA of accidents including time limits for and methods of notification and what information the RTA must submit to the SSOA (§ 674.27(a)(6) and § 674.33(a)).	**YES**	**7.4**
H-4-b	○ FTA requirements to notify the SSOA and FTA within two hours of any accident occurring on the RTA system (§ 674.33(a)).	**YES**	**7.4**

FTA 674 Supplemental Checklist Items:			
#	PLAN REQUIREMENTS The plan must contain or provide for the following:	INCLUDED Yes — No	PAGE REF.
H-4-c	○ What must be included in any investigation report developed on behalf of the SSOA, including, at a minimum, identification of factors that caused or contributed to the accident and setting forth a Corrective Action Plan as appropriate (§ 674.35(b)).	**YES**	**7.4**
H-4-d	○ How the RTA will work with the SSOA when conducting its own internal investigation of a safety event (§ 674.35(a)).	**YES**	**7.4**
H-4-e	○ The process through which the RTA will review investigation reports developed by the SSOA, and submit written dissent, as appropriate (§ 674.35(b)).	**YES**	**7.4**
H-4-f	○ Training requirements for all personnel and contractors that conduct investigations on behalf of an SSOA in accordance with the Public Transportation Safety Certification Program (§ 674.35(c)).	**YES**	**8.4.2**
H-8-a	○ Notifying the SSOA before conducting any internal safety review, following the process specified in the SSOA Program Standard (§ 674.27(a)(4)).	**YES**	**7.1.1, 7.1.2, 7.1.3**
H-8-b	○ Submitting materials regarding the conduct and results of internal safety reviews to the SSOA under the Accountable Executive's signature (§ 674.27(a)(4)).	**YES**	**7.1.1, 7.1.2, 7.1.3**
Section L. SSOA Compliance Assessment			
L-1	○ Is consistent with FTA's regulations for implementing such plans and the National Public Transportation Safety Plan (§ 674.29(a)).	**YES**	**2.0, 4.0**
L-2	○ In compliance with the SSOA's Program Standard (§ 674.29(a)).	**YES**	**5.2.1**
L-3	○ Is approved by the RTA's board of directors or equivalent entity (§ 674.29(b)).	**YES**	**1.0**
L-4	○ Sets forth a sufficiently explicit process for safety risk management, with adequate means of risk mitigation for the rail transit system (§ 674.29(b)).	**YES**	**6.0, 6.1, 6.2, 6.3**
L-5	○ Includes a process and timeline for annually reviewing and updating the ASP (§ 674.29(b)).	**YES**	**3.2.1**
L-6	○ Includes a comprehensive staff training program for the operations personnel directly responsible for the safety of the RTA (§ 674.29(b))	**YES**	**8.1.1**
L-7	○ Identifies an adequately trained safety officer who reports directly to the general manager, president, or equivalent officer of the RTA (§ 674.29(b)).	**YES**	**2.3.3**
L-8	○ Includes adequate methods to support the execution of the ASP by all employees, agents, and contractors for the rail transit system (§ 674.29(b)).	**YES**	**Throughout**
L-9	○ Sufficiently addresses other requirements under the regulations at 49 C.F.R. Part 673 (§ 674.29(b)).	**YES**	**Throughout**