SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY
PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

One South Van Ness Avenue
San Francisco, CA 94114

The San Francisco Municipal Transportation Agency Safety Plan (PTASP) was developed by the Safety Division during 2019 and 2020 with assistance from all SFMTA Divisions, especially Transit, Sustainable Streets, Finance and Information Technology, and Capital Programs and Construction, as well as, the City Attorney's Office We relied on the applicable regulations and guidances from the Federal Transit Administration PTASP Technical Advisory Center and staff from the California Public Utilities Commission. For all those subject matter experts who reviewed the draft PTASP and provided comments, recommendations, and suggestions, we extend our deepest gratitude.

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GENERAL

Revision History

Version	Notes
Version 0	April 22, 2020 PTASP developed by the Safety Division in collaboration with SFMTA management and consultation with CPUC staff and PTASP Technical Advisory Center.

Acronyms

ADA	Americans with Disability Act
APTA	American Public Transportation Association
ATO	Automatic Train Operation
ATP	Automatic Train Protection
ATCS	Automatic Train Control System
CCB	Change Control Board
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission (State Safety Oversight Agency)
CSO	Chief Safety Officer
FBI	Federal Bureau of Investigation
FE	Functional Expertise
FOF	Field Observation and Feedback
FTA	Federal Transit Administration
GO	General Order
HSC	Historic Streetcar
ISAP	Internal Safety Audit Program
ICS	Incident Command System
ISEC	Industrial Safety & Environmental Compliance
MPH	Miles per Hour
MTC	Metropolitan Transportation Commission
NIMS	National Incident Management System
NTD	National Transit Database
OSHA	Occupational Safety and Health Administration
SFMTA	San Francisco Municipal Transportation Agency
SME	Subject Matter Expert
SMS	Safety Management System
SMSSMC	Safety Management System Senior Management Safety Committee
TMC	Transportation Management Center
PM	Preventative Maintenance
RPC	Rules and Procedures Committee
RT	Rail Training
RWP	Roadway Worker Protection
SCADA	Supervisory Control and Data Acquisition
SCRC	Safety Certification Review Committee
SEI	Safety-Event Investigation
SEIP	Safety Event Investigation Procedures
SMS	Safety Management System
SOP	Standard Operating Procedure
TAM	Transit Asset Management
TMC	Transportation Management Center
TSA	Transportation Security Administration
TSS	Transportation Safety Specialist
U.S.C.	United States Code

Definitions

Accident means any Safety Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision of an SFMTA transit revenue vehicle; 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. SFMTA does not use the term "accident." This definition is included only to acknowledge the terminology used in Federal and State regulations.

> *Rail Accident* is a rail Safety Event that involves any of the following: loss of life, a report of a serious injury to a person; a collision of a SFMTA rail revenue vehicle; 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. All such rail accidents are reportable to the State Safety Oversight Agency. All rail accidents except those collisions that do not involve serious injury, fatality, or substantial damage or that do not occur in a grade crossing are reportable to the National Transit Database (NTD).
>
> *Bus Accident* is a bus Safety Event that involves any of the following: A loss of life; a collision of a SFMTA bus revenue vehicle; or an evacuation for life safety reasons. All bus accidents that involve immediate transportation of an injured party away from the scene for medical attention, property damage equal to or exceeding $25,000 and an evacuation of a bus for life safety reasons are reportable to the National Transit Database (NTD).

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

Board of Directors means the governing board with the authority to review and approve the SFMTA's Public Transportation Agency Safety Plan.

Chief Safety Officer means an adequately trained individual who has responsibility for safety and reports directly to the SFMTA's Director of Transportation. The SFMTA Chief Safety Officer may not serve in other operational or maintenance capacities. Chief Safety Officer serves as the Safety Management System (SMS) Executive.

Corrective Action Plan means a plan that describes the actions the SFMTA will take to minimize, control, correct, or eliminate risks and hazards, and the schedule for taking those actions.

Division means SFMTA's Transit, Sustainable Streets, Capital Programs and Construction, Finance and Information Technology, Governmental Affairs, Safety, Taxi and Accessible Services, Human Resources or Communications Divisions

Documentation means the written description of policies, processes, procedures, objectives, requirements, authorities, responsibilities, or work instructions in support of SFMTA's PTASP and SMS.

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

Hazard means any condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of the SFMTA; or damage to the environment.

Incident is a Safety 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 the SFMTA.

Investigation means the process of determining the causal and contributing factors of a Safety Event or hazard, for the purpose of preventing recurrence and mitigating risk.

Key Staff means people who directly oversee a division, facility, or craft.

Metropolitan Transportation Commission is the metropolitan transportation planning organization for the San Francisco Bay Area.

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 is a Safety Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of the SFMTA.

Operating division means any one of SFMTA's eight transit bus and rail operating divisions including Green, Woods, Flynn, Kirkland, Islais Creek, Potrero, Presidio, and Cable Car.

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).

Program Standard means the "Program Standard – Procedures Manual State Safety and Security Oversight of Rail Fixed Guideways" of the California Public Utilities Commission.

Public Transportation Agency Safety Plan (PTASP) means the documented comprehensive agency safety plan for a transit agency that is required by 49 U.S.C. 5329 and 49 CFR 673.

Public Transportation Safety Certification Training Program means either the certification training program for Federal and State employees, or other designated personnel, who conduct safety audits and examinations of public transportation systems, and employees of public transportation agencies directly responsible for safety oversight.

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, inclined plane, funicular, and automated guideway. Rail transit agency means any entity that provides services on a rail fixed guideway public transportation system.

Records means the evidence of results achieved or activities performed.

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

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

Safety Event is an accident, incident, or occurrence

Safety Paper Form means the paper form available to employees at each of the SFMTA's Divisional Safety Bulletin Boards to report anonymous safety concerns or conditions.

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

Safety Management Policy means SFMTA's documented commitment to safety, which defines SFMTA'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 risks and hazards.

Safety Management System (SMS) Executive means the SFMTA Chief Safety Officer.

Safety performance target means a Performance Target related to safety management

Safety Promotion means a combination of training and communication of safety information to support SMS as applied to SFMTA'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 the SFMTA's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.

Senior Management means the SFMTA's directors, deputy directors, operating division managers, safety managers and training managers.

Serious injury means any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; (2) Results in a fracture of any 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.

State means California

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 the State of California 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. The California Public Utilities Commission (CPUC) is SFMTA's State Safety Oversight Agency for rail.

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 assets 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.

TransBASE means the online database and analytical tool developed by the San Francisco Department of Public Health (SFDPH) in collaboration with multiple city agencies to improve our understanding of transportation-related safety issues and help address them.

Vehicle means any rolling stock used on the SFMTA rail transportation system, including, but not limited to passenger and maintenance vehicle. It also means any rubber-tire vehicle used to transport revenue passengers on the SFMTA bus system.

Certification of Compliance

Accountable Executive's Approval

As the Accountable Executive for SFMTA's Safety Management System, I have approved this Public Transportation Agency Safety Plan and certify that it complies with 49 CFR 672, 673, 674, CPUC General Order 164 and CPUC Program Standard.

_____

Jeffrey Tumlin Date
Director of Transportation

1.0 INTRODUCTION

1.1 Safety Management System (SMS) Structure

This document is the San Francisco Municipal Transportation Agency's (SFMTA) Public Transportation Agency Safety Plan (PTASP) for the Bus and Rail systems and our street design to the extent that it impacts our Bus and Rail Systems. This PTASP embodies the elements in 49 CFR Part 673 adopted July 19, 2018 which focuses on establishing a Safety Management System (SMS). 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."

The four SMS components (Safety Management Policy, Safety Risk Management, Safety Assurance, and Safety Promotion) lay the foundation of SFMTA's safety culture and support a safe, reliable system.

The processes described in the four SMS components in this PTASP are appropriately scaled to the size, scope, and complexity of the Agency, which is comprised of approximately 1000 buses, 230 light rail vehicles, 60 historic street cars, 26 cable cars, approximately 6000 employees and 9 Divisions.

SFMTA's PTASP establishes accountability and responsibility at the top levels of the organization, evidenced by the SFMTA's Board's approval and Director of Transportation's commitment to allocate necessary resources to sustain and improve SFMTA's safety culture.

This safety plan explains each organizational unit's function within the larger SFMTA transportation system and how accountability for safety is integrated throughout the organization.

1.2 PTASP Structure

The PTASP Structure is based on the requirements of 49 CFR Part 673. It also provides SFMTA's Organization Structure, summarizes SFMTA's background and history of its formation, the scope and purpose of this PTASP, and a system description. The PTASP is organized by following §673 sections:

General
§673.1 Applicability
§673.3 Policy
§673.5 Definitions

Safety Plan
§673.11 General requirements
§673.13 Certification of compliance
§673.15 Coordination with metropolitan, statewide, and non-metropolitan planning processes

Safety Management System
§673.21 General Requirements
§673.23 Safety Management Policy
§673.25 Safety Risk Management
§673.27 Safety Assurance
§673.29 Safety Promotion

Safety Plan Documentation and Recordkeeping
§673.31 Safety plan documentation
§673.33 Safety plan records

The core of the PTASP is Safety Management System (SMS), which is divided the four components integral to the successful implementation of SMS within the SFMTA Transportation System: Component 1 - Safety Management Policy, Component 2 - Safety Risk Management, Component 3 - Safety Assurance, and Component 4 - Safety Promotion. Each Component has several elements and each element includes processes and activities that are implemented within the SFMTA to ensure compliance with SMS requirements.

Component 1 - SFMTA's Safety Management Policy component is divided into five elements:

1. Safety Management Policy Statement
2. Safety Policy Communication
3. Employee Safety Reporting Program
4. Safety Goals

5. Safety Authorities, Accountabilities and Responsibilities

Component 2 - SFMTA's Safety Risk Management component includes three elements:

1. Safety Hazard Identification
2. Safety Risk Assessment
3. Safety Risk Mitigation

Component 3 - SFMTA's Safety Assurance component includes three elements:

1. Safety Performance Monitoring and Measurement
2. Management of Change
3. Continuous Improvement

Component 4 - SFMTA's Safety Promotion component includes two elements:

1. Safety Competency and Training Program
2. Safety Communication

The PTASP also contains a list of Standard Operations Procedures (SOPs), which support the activities and processes of SMS. These SOPs are incorporated by reference. In cases where there is a conflict between the PTASP and an SOP, the SOP will prevail. These SOPs are further described throughout the document. (See Appendix H for a list of SOPs.)

The PTASP will be revised annually. Those revisions are identified in the PTASP Revision Table, which is part of this document.

2.0 TRANSIT AGENCY INFORMATION

2.1 History

The San Francisco Municipal Railway (Muni) began operating in 1912, as one of the first municipally owned and operated transit systems in the United States. The original system started with streetcars and then included motor coaches in the 1920s and trolleybuses in the 1940's. The streetcar system was extended to western San Francisco through the Twin Peaks Tunnel, built in 1917, and the Sunset Tunnel, built in 1928. The Twin Peaks Tunnel is now an integral part of the Muni Metro Subway, and the Sunset Tunnel is part of the N-Judah alignment. In 1944, the Municipal Railway bought the Market Street Railway and incorporated its lines into the Muni System.

As a result of the purchase of the Market Street Railway, Muni acquired the two Powell Street cable car lines. In 1947, an amendment to the City's Charter saved the two Powell Lines. Then in 1952, Muni acquired and saved one of the remaining California Street Lines.

In 1981, the surviving Muni streetcar lines (J, K, L, M, and N) were placed in a subway system, which included the Twin Peaks Tunnel and the Muni Metro Subway, which was built by the Bay Area Rapid Transit District (BART) as part of its original construction project.
Then in 2000, the Municipal Railway (Muni) was amalgamated with the Department of Parking and Traffic (DPT) into a single department of the City and County of San Francisco as a result of the citizens of San Francisco passing Proposition E. In March 2000, Muni and DPT became the San Francisco Municipal Transportation Agency (SFMTA).

In 2007, SFMTA's authority over transportation and responsibility for oversight increased with the passage of Proposition A, which authorized SFMTA to issue bonds and required measurable standards for traffic and parking. Today, SFMTA has responsibility for the management of all ground transportation in the city, including transit (except for BART), bicycling, paratransit, parking, traffic, walking, and regulation of taxis.

The SFMTA is governed by a seven-member Board of Directors, appointed by the Mayor and confirmed by the San Francisco Board of Supervisors. The SFMTA Board provides policy oversight for the safe and efficient movement of people and goods in San Francisco in accordance with the San Francisco Charter and the Transit-First Policy.

2.2 System Description

The Muni rail system includes light rail surface and subway, historic streetcar, and cable car operations. The light rail system is built on the general alignment of the original streetcar lines, including the J, K, L, M, and N lines.

The five original Muni lines enter the Muni Metro Subway, which runs under Market Street, through the Twin Peaks tunnel, West Portal Entrance, or the Duboce Portal. In 1997, Muni

built the Muni Metro Extension (MMX) which brought light rail service to the Caltrain Station at 4th and King Streets (through the Muni metro Turn back – MMT) and enters the subway through the Ferry Portal. Completed in 2007, Muni operates the T-Third Street Line, which extends light rail service from 4th and King to the southern border of the city, along Third Street and Bayshore Blvd, and is supported by Muni Metro East Maintenance Facility (MME).

SFMTA is in the process of completing the Central Subway which will extend the T Line from Fourth and King to the Chinatown Station. The alignment continues on north on the 4th Street. Then, near Brannan Street, the tracks go underground to the new subway, which continues under 4th Street and Stockton Street with the terminus near Clay Street. The project is expected to open for revenue service in 2021.

In addition to the light rail and Muni Metro service, Muni operates the F-Line, running on the historic street car tracks on Market Street and along the right-of-way on the Embarcadero to Fisherman's Wharf and the E-Line sharing the tracks on the Embarcadero to Fisherman's Wharf and the Muni Metro Extension (MMX) tracks from Folsom to the CalTrain depot. These lines are exclusively operated by historic streetcars (HSCs). Muni LRVs and HSCs operate out of both the Green Metro and Muni Metro East (MME) divisions.

Muni continues to operate its historic cable car system which came into existence in 1873. The remaining lines are California Street, Powell-Hyde, and Powell-Mason. Cable cars are propelled by a cable, located under the street surface and powered from a central station at Washington and Mason Streets. The cable cars themselves are built on original designs, which appeared near the end of the 19th century. Cable cars operate out of their own division, which is separate from other rail divisions.

Muni operates 278 low-floor, 40 and 60-foot, electric trolleybuses on approximately 16 lines out of the Presidio and Potrero divisions. Muni also operates over 600 Diesel and Diesel-electric hybrid buses, 30, 40 and 60-foot models, on approximately 41 lines, operating out of the Woods, Flynn, Kirkland, and Islais Creek divisions. (See Appendix I for System Maps).

2.3 SFMTA Organizational Structure

SFMTA is generally divided among nine functional units, known as "Divisions." Each Division works together and with the Safety Division to ensure that the SMS is implemented in compliance with the FTA regulations.

- Capital Programs and Construction
- Communications
- Finance and Information Technology
- Governmental Affairs
- Human Resources
- Safety
- Sustainable Streets

- Taxi and Accessible Services
- Transit

Throughout this document, when we use the term "Division," we are referring to one of the nine major functional units. When we use the term "division," we are referring to one of the eight operating units of the Transit Division under the Director of Transit. When we use the term "work unit," we are referring to one of the areas within the major "Divisions."

2.3.1 Board of Directors

SFMTA is governed by its Board of Directors, which provides legislative, policymaking for the agency. The Board of Directors consists of seven (7) members all of whom are appointed by the Mayor. The Board of Directors is responsible for providing policy, direction, and governance, as well as ensuring that the needs of the residents of the City and County of San Francisco, SFMTA customers, and other stakeholders are reflected in SFMTA's policies.

2.3.2 Director of Transportation (DOT)

SFMTA's DOT is responsible for SFMTA's overall management overseeing the Municipal Railway (Muni), parking, traffic engineering, pedestrian planning, bicycle implementation, accessibility and taxi regulation. Responsibilities include reporting to the Board of Directors on the activities, performance, and status of agency activities, directing the executive teams, and ensuring SFMTA's programs support regional economic develop while prioritizing the agency programs and supporting the overall quality and safety of SFMTA programs. For purposes of safety and this PTASP, the DOT functions as the Accountable Executive.

2.3.3 General Counsel

The General Counsel role is served by an attorney in the San Francisco City Attorney's Office who leads a team of lawyers that represent the SFMTA in legal proceedings and provide legal advice and counsel.

2.3.4 Board Secretary

The Board Secretary is responsible for administering the affairs of the SFMTA Board of Directors/Parking Authority Commission and their committees. The Board Secretary also oversees the SFMTA's response to all requests for public records and is the staff liaison to the SFMTA's Citizen's Advisory Council.

2.3.5 Chief Financial Officer

The Chief Financial Officer oversees the Finance and Information Technology Division of SFMTA ensuring financial stability and effective resource utilization to maximize the financial,

technological and physical ability and capacity of the SFMTA to support the SFMTA's Strategic Plan.

2.3.6 Director of Information Technology

The Director of Information Technology oversees the Information Technology (IT) Unit of SFMTA, which provides technology solutions and integration to enable data driven decision-making within the SFMTA. Projects include:

- Ensuring SFMTA's data infrastructure
- Asset Management software that supports an overall positive ridership experience
- System Integration and modernization for our Train Control System, transit vehicle video, station video, and radio communications.

2.3.7 Director of Human Resources

The Director of Human Resources oversees human resource professional staff to ensure the supply of necessary human resources support services to the SFMTA including recruitment, hiring, employment and labor relations, organizational development and training, employee wellness, equal employment opportunity and workers' compensation

2.3.8 Chief Safety Officer

The safety of the SFMTA system are of utmost importance in everything SFMTA does. As such, safety responsibilities are shared across SFMTA leadership, all employees, contractors, and the public. The Chief Safety Officer oversees the System Safety and the Industrial Safety Division. For purposes of safety and PTASP, the Chief Safety Officer is designated as the SMS Executive.

The Chief Safety Officer regularly attends SFMTA Board meeting providing pertinent safety information to its members and attends the Fire Life Safety Committee meetings and chairs the monthly SMS Steering Committee meetings.

The three Safety Units, System Safety, Safety Administration, and the Industrial Safety & Environmental Compliance, carry out the Director's safety initiatives.

2.3.9 Director of Transit

The Director of Transit is responsible for overseeing the transit system by focusing on making Muni service more reliable, safer, and customer oriented. The Transit Operations Unit manages the day-to-day service on the street including eight operating divisions as well as the Transportation Management Center, Transit Supervisor and Station Agents. The Bus and Rail Maintenance Units maintain the buses including motor coaches and electric trolleybuses and rail including light rail vehicles, historic streetcars and cable cars. Maintenance of Way is responsible for track and signal maintenance, infrastructure maintenance and overhead lines, maintaining facilities and infrastructure (garages and shops), light rail right-of-way, track way,

fare collection system, vehicle and station cleaning and track signalization. The Program Delivery and Support Unit provides expertise in the operations and maintenance of critical transit systems. The Cable Car Unit provides historic cable car service on the three remaining lines located in the northern quadrant of San Francisco. Cable Car builds, operates and maintains the cable car fleet, operates and maintains the cable car machinery, and maintains its own track system.

2.3.10 Director of Capital Program and Construction

The Capital Programs and Construction Division improves the City's transportation infrastructure by managing the capital improvement programs for all City and County transportation initiatives to support San Francisco's needs as the City changes and grows. This is achieved by engineering and construction improvements to the City's transportation infrastructure and the transit fleet and facilities; meeting the goals of Proposition E, as well as supporting the City's General Plan.

2.3.11 Director of Sustainable Streets

The Sustainable Streets Division of the SFMTA provides multimodal transportation planning, engineering and operational improvements to San Francisco's transportation system to support sustainable community and economic development. The mission of Sustainable Streets is to plan, design, implement, and maintain the city's transportation infrastructure and regulations to support San Francisco's mobility needs as the city changes and grows. The Sustainable Streets Division initiates and coordinates improvements to the city's street, transit, bicycle, pedestrian and parking infrastructure, thereby meeting the goals and objectives of the Transit First Policy, as well as supporting the SFMTA's Strategic Plan.

2.3.12 Director of Governmental Affairs

The Director of Governmental Affairs is responsible for overseeing the coordination, development, advancement, and monitoring of the SFMTA's legislative and policy interests at the local, state and federal levels. The Division also includes Regulatory Affairs responsibilities. The Directors ensures that a supportive policy and regulatory environment exists to advance the capital project and policy priorities of the Agency.

2.3.13 Director of Taxis and Accessible Services

The Taxis and Accessible Services Division (TAS) represents a combination of two distinct functions of the SFMTA that substantially overlap in the regulation of the taxi mode of transportation. Accessible Services is a core support function for all modes of the agency to ensure that transit, pedestrian and bike facilities and taxi services are accessible to older adults and people with disabilities. This unit also oversees the SFMTA Paratransit program. Taxi Services' core function is to license and regulate the private taxi industry to ensure that drivers and vehicles are safe, that taxi service is accessible to the disability community, and service is

available regardless of trip origin or destination at prices that are transparent. TAS also collaborates with Sustainable Streets Division to harmonize regulated mobility permit programs to ensure SFMTA is prepared to oversee existing, new and future programs, as well as benefit from a more efficient organization structure.

2.3.14 Director of Communications

The Communications and Marketing Division is responsible for all aspects of internal and external communications including community outreach, public relations, social media, marketing, creative services and the SFMTA public website. It also manages the SFMTA's historic photography archive.

See Appendix A for the SFMTA Organizational Charts.

2.4 Scope and Purpose

Pursuant to CPUC General Order 164, the Program Standard, 49 CFR Part 673, and 49 CFR Part 674, the PTASP applies to all of the SFMTA's transportation system modes including: the two bus system modes - motor coaches and electric trolleybuses; the three rail system modes - cable cars, historic street cars, and light rail vehicles; and the sixth mode - demand-response paratransit.

The PTASP defines SFMTA's technical and managerial safety activities of our transit system. The PTASP applies to all organizational units affecting, or affected by, the SFMTA bus and rail systems from planning through the operations and maintenance phases. Management's compliance with the PTASP ensures that its goals and objectives are achieved.

The PTASP demonstrates SFMTA's commitment to safety by identifying programs and processes that minimize all safety events. This PTASP complies with the requirements of 49 Code of Federal Regulations Parts 672, 673 and 674, issued by the Federal Transit Administration (FTA), General Order 164, issued by the California Public Utilities Commission (CPUC) as well as the CPUC Program Standard.

2.4.1 Applicability

Part 673 applies to SFMTA because the agency receives Federal financial assistance under 49 U.S.C. 5311.

2.4.2 Paratransit Services

SFMTA contracts for paratransit services with Transdev North America. Paratransit service providers are required to prepare a PTASP. We have reviewed the PTASP provided by Transdev North America and find that the Transdev PTASP complies with this rule. The Transdev PTASP is incorporated by reference.

3.0 SAFETY PLAN

This PTASP Safety Plan Section outlines SFMTA's conformance with SMS components pursuant to 49 CFR 673 including establishing safety performance targets, reviewing and updating of this document, emergency management protocols, coordination with the Metropolitan Transportation Commission (MTC), which is the metropolitan transportation planning organization for the San Francisco Bay Area, and establishing activities and process to support the Four Components of SMS as described in Sections 4.0 – 7.0.

3.1 Safety Performance Targets

The establishment of safety performance targets for the measures specified by the National Public Transportation Safety Plan (NPTSP) is a requirement of the FTA's PTASP Final Rule, 49 CFR Part 673. SFMTA's safety performance targets seek to ensure the mitigation of identified safety risks to a point that is as low as reasonably practicable. By identifying specific, measurable, attainable, relevant, and timebound (SMART) targets, SFMTA establishes processes for the regular evaluation of safety data collected across the agency.

SFMTA has set forth safety performance targets in furtherance of the agency's Safety Assurance processes, a critical aspect of SFMTA's SMS. These processes continuously scrutinize and record safety performance. Detailed in Section 6 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, are appropriate, and effectively reduce safety risk. By identifying and clearly defining safety performance targets, SFMTA safety performance monitoring and measurement activities ensure the consistency of safety performance data, establishing criteria against which safety performance may be measured.

Safety performance targets reflect the structure of agency operations. Rail and bus operations generate data that allows for the development of safety performance targets. As indicated earlier, SFMTA paratransit services, though overseen by SFMTA staff, are provided by a third-party contractor. Accordingly, the paratransit contractor is subject to performance targets detailed in the contract and performance targets identified in the NPTSP. As such, Safety Assurance processes, including the monitoring and measurement and continuous improvement of safety performance, are managed by the contractor. SFMTA does, however, oversee contractor performance through quality assurance processes.

Lagging vs. Leading Indicators

SFMTA's safety performance targets consist of both lagging and leading indicators. Lagging indicators (e.g. injury statistics) identify historical safety performance trends using readily available data to assess outcomes. Leading indicators, such as system reliability data, aid in safety risk management through the proactive identification of conditions that may affect safety performance. The processes used to measure achievement of the safety performance

targets, detailed in Section 6.1, are well established practices. As SFMTA's SMS matures, the Safety Division will work with departments throughout the agency to further identify, develop, and formalize potential additional measurements and safety performance targets associated with agency-identified safety risks. These may include statistics on fires, evacuations, derailments, collisions, and rule compliance. As the processes for the measurement of these safety performance indicators are validated, the Safety Division will develop and coordinate, to the maximum extent practicable, these performance targets with the State of California, through the California Public Utilities Commission (CPUC), and the Metropolitan Transportation Commission (MTC, the metropolitan planning organization covering SFMTA's service area)

SFMTA's PTASP includes seven safety performance measures for each rail and bus mode based on the measures established under the National Public Transportation Safety Plan (NPTSP). SFMTA measures safety performance by the number of fatalities, reportable injuries and reportable safety events by each of our seven modes of transportation. These are reported in both total numbers and rates per 100,000 miles. An summary of performance measures and targets are shown in the table below. (See Appendix B for the performance measures and specific performance targets by mode. The initial base year is July 1, 2020 through June 30, 2021.)

Table 3-1: National Public Transportation Safety Program Safety Performance Targets

Target		Measurement
Events	Reduction of previous year's NTD reported numbers annually Based on total reported safety events	Total number of NTD reportable events; Rate per 100,000 vehicle revenue miles
Fatalities	0 0	Total number of NTD reportable fatalities; Rate per 100,000 vehicle revenue miles
Injuries	Reduction of previous year's NTD reported numbers annually Based on total reported injuries	Total number of NTD reportable injuries; Rate per 100,000 vehicle revenue miles
Failure Rate	Increase in System Reliability based on previous year's NTD reported numbers	Mean distance between major mechanical failures; a major mechanical failure is defined as a failure of some mechanical 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.

3.2 Plan Development, Review, and Updates

3.2.1 Plan Development

On July 19, 2018, The FTA published the PTASP Final Rule under Title 49 CFR Part 673. Part 673 supersedes the safety plan requirement of 49 CFR Part 659 and requires certain operators of public transportation systems that receive funding under 49 United States Code (USC) Chapter 53 to develop a PTASP. This rule, effective July 20, 2019, requires that SFMTA have an approved PTASP in place by July 19, 2020. This PTASP has been developed as a comprehensive, agency-wide, safety plan built on a Safety Management System (SMS) to meet FTA requirements 49 CFR Part 673. This plan also fulfills the requirements of the CPUC Program Standard and GO 164 requiring a safety plan for SFMTA rail operations.

3.2.2 Plan Review and Update

As required by 49 CFR Part 673 and the CPUC GO 164, the SFMTA reviews its PTASP annually in order to determine if updates are required. SFMTA's Director of Transportation, acting as the agency's Accountable Executive, will hold SFMTA management responsible, as well as committees with agency safety processes established, to fulfill this requirement.

SFMTA's Safety Division will coordinate the annual review of the PTASP, beginning with a notification to all SFMTA Division by October that they must review PTASP sections applicable to their function to ensure that PTASP aligns with their processes. The Safety Division will seek feedback from all Divisions to identify any changes to the PTASP. Division directors may appoint representative from their respective areas or conduct the review themselves. The Chief Safety Officer is responsible for ensuring that all proposed changes are collected by January. Safety Division personnel designated and trained in Safety Management System (SMS) are then responsible for compiling revisions from each department into an updated PTASP with all changes highlighted. Once the draft PTASP is updated, the Safety Division will present the revised PTASP to all Divisions. The updated PTASP will then be submitted to all parties responsible for plan approval. The table below summarizes annual deadlines.

Table 3-2. Schedule for Annual PTASP Review and Approval

Task	Date
Safety Notifies Division Directors of Annual PTASP Update	No later than early October
Divisions Submit PTASP Updates to Safety	No later than early November
Safety Completes Draft Revised PTASP	No later than mid-November
Safety Presents Draft Revised PTASP to Divisions	No later than early December
CPUC Staff Reviews Draft Revised PTASP	No later than early December
Accountable Executive Approves Final Revised PTASP	No later than mid-December
Board of Directors Approves Final Revised PTASP	No later than early January
Safety Submits Final Revised PTASP to CPUC	No later than February 15th

3.2.3 Planned Approval Processes (Internal)

The SFMTA Executive Team is responsible for reviewing and approving proposed changes to the PTASP ultimately providing the Safety Division with an approved draft PTASP. The Executive Team is also responsible for reviewing and approving any changes subsequently requested by the CPUC staff. Upon the approval of all changes by Executive Team, the Accountable Executive and Board of Director are responsible for final approval of the revised PTASP.

3.2.4 Plan Approval Processes (External)

Following the conclusion of SFMTA review and in accordance with GO 164, the Safety Division will submit a formal letter to the CPUC declaring that the PTASP has been reviewed and revised if necessary. Attached to this letter will be an updated copy of the PTASP for the CPUC to review and approve with respect to the rail portion of the SFMTA system. CPUC's approval indicates that CPUC staff, in compliance with 49 CFR Part 674 and CPUC's Program Standard, has reviewed the effectiveness of SFMTA's SMS and determined that it complies. This could include review and approval of internal Safety Audits or the Triennial Safety Review. Should the CPUC request any changes to the PTASP, the Safety Division is responsible for vetting these changes with the affected Division and again submitting to the Executive Team, Accountable Executive, and the Board of Directors for their approval.

3.2.5 Plan Endorsement

Following written approval by the CPUC, the PTASP will then be endorsed by SFMTA's Accountable Executive and Board of Directors and made available throughout the agency by the Safety Division as well as introduced to employees during the New Employee Orientation process.

3.2.6 Coordination with Planning Stakeholders

In accordance with 49 CFR 673.15, SFMTA makes its safety performance measures available to the State of California's Public Utilities Commission (CPUC) for its review and to the Metropolitan Transportation Commission (MTC) to aid in its regional planning processes. To the maximum practicable, SFMTA coordinates with CPUC and the MTC in the selection of these targets.

3.2.7 Certification of Compliance

In accordance with 49 CFR Part 673.13, SFMTA provides an initial certification, and an annual certification thereafter, that it has met FTA's PTASP requirements. SFMTA will perform this certification using FTA's Transit Award Management System (TAM), FTA's software system for awarding and managing Federal grants.

In accordance with CPUC GO 164, SFMTA will submit annually a drafted formal letter of certification signed by the Accountable Executive certifying that SFMTA, based on the evaluation during the internal safety audit processes during the previous year, is in compliance with its PTASP and the National Transportation Safety Plan's performance requirements. (See Appendix B for these specific performance measures.)

3.3 Emergency Management Program

The PTASP incorporates by reference its Emergency Operations and Response Plan and associated procedures that address assignment of employee responsibilities during an emergency and how we coordinate with Federal, State, regional, and local officials during an emergency.

3.3.1 Operational Emergencies

SFMTA has emergency procedures to respond to various types of emergencies on the transportation system. These procedures include roles and responsibilities for departmental staff who respond to these emergencies.

3.3.1.1 Rail Operational Emergencies

Currently, all emergency response procedures for rail operations are found in SFMTA "Transportation Management Center (TMC) Manual" which contains pertinent SOPs. Examples of these SOPs are Subway Failure, Collision, Earthquake, Flood, Fire and Smoke, Bomb Threat, Civil Disorder Response, etc. For further details, refer to Appendix H.

Every day, the SFMTA TMC directly works with 911 Emergency Communications and BART Operations Central Control to rapidly respond to routine systemwide rail emergencies. Field staff deployment is determined by the type and extent of an emergency. The first SFMTA employee arriving at the incident scene assumes the role of Incident Commander until he/she is released in accordance with Incident Command System (ICS) protocols.

In the event of a major city disaster that impacts more than transportation, the SFMTA Executive Director will join the Mayor and other City/County officials to determine strategic responses and then provide directives to all pertinent SFMTA Divisions for implementation. The SFMTA Emergency Manager will direct the Transportation Branch in the San Francisco Emergency Operation Center to develop and coordinate an integrated response for meeting transportation and evacuation needs on land and water and in the air, both for San Francisco and the Bay Area region. In such major incidents, SFMTA's responses and resource requests are prioritized and coordinated with local, regional, State, and Federal government in accordance with National Incident Management System (NIMS) protocols. Further, in order to prepare for large-scale disasters and maintain close communications with outside departments and agencies, the SFMTA participates in the annual training and exercise(s), such as Fleet Week, coordinated by the San Francisco Department of Emergency Management.

3.3.1.2 Bus Operational Emergencies

Currently, all emergency response procedures for bus operations are found in SFMTA "Transportation Management Center Manual" which contains pertinent SOP's. Examples of these SOPs include Requests for Police or Emergency Medical Assistance and Earthquakes. For an extensive list, refer to SFMTA's TMC SOPs.

3.3.2 Emergency Preparedness

3.3.2.1 Rail Emergency Preparedness

SFMTA's Emergency Management Unit is responsible for coordinating the process for system-wide emergency response planning.

Rail Operations, in coordination with SFMTA's Emergency Management Unit, conducts at least one exercise each year in the rail system to prepare for emergencies.

The Emergency Management Unit collaborates with the Transit and Safety Divisions to determine emergency response training scenarios for the annual exercises. Scenarios may be selected based on recent or past incidents, changes in procedures or regulations, or potential emergencies impacting new projects such as Central Subway.

The Emergency Management Unit documents lessons learned from these exercises and provides to Transit and/or other Divisions.

When lessons learned require a change to current procedures, the affected Division will revise the procedure and implement the changes. All stakeholders will receive a copy of the revised procedure or be notified by General Notice or other accepted communication, such as a memorandum.

3.3.2.2 Bus Emergency Preparedness

Bus Operations participate in the exercise(s) that the Emergency Management Unit and Transit Division conduct every year. When lessons learned require a change to current procedures, the affected Division will revise the procedure and implement the changes. All stakeholders will receive a copy of the revised procedure or be notified by General Notice or other accepted communication, such as a memorandum.

3.3.3 Emergency Operations and Response Plan (Disaster Recovery Plan)

SFMTA's Emergency Preparedness Unit has developed and maintains the Emergency Operations and Response Plan (EORP), which is incorporated by reference. The SFMTA EORP contains assignment of employee responsibilities during an emergency**.** The EORP also covers coordination with federal, state, regional and local officials.

3.3.4 System Security Plan

Although not required under the FTA regulations, pursuant to the CPUC request, we are incorporating by reference, the System Security Plan (SSP) for Rail, as part of the agency's PTASP.

4.0 SAFETY MANAGEMENT POLICY

The following Sections 4.0 -7.0 describe the activities and processes to support the four SMS Components – Safety Management Policy, Safety Risk Management, Safety Assurance, and Safety Promotion.

4.1 Safety Management Policy Statement

The SFMTA written Safety Management Policy Statement, which is provided below, includes safety objectives and describes the organizational accountabilities and responsibilities for safety:

"Safety is everyone's responsibility and is SFMTA's number one priority Safety takes a prominent role in our decision-making. To support this priority, SFMTA has a Safety Management System (SMS) that encourages open sharing of information on all safety issues. The Public Transportation Agency Safety Plan (PTASP) is the agency's safety plan, the purpose of which is to document the details of the agency's SMS.

Safety Objectives

SFMTA's overall safety objective is to proactively manage hazards and their associated risk to ensure the safety of our transportation system. SFMTA has established safety performance targets to measure the effectiveness of our processes and activities to ensure we meet our safety objectives.

Safety Accountability and Responsibility

All levels of management and all employees are accountable for the highest level of our safety performance, starting with me, Jeffrey Tumlin. As the Director of Transportation, I have ultimate accountability for our safety. The Safety Division, led by Melvyn Henry, the Chief Safety Officer, is responsible for developing, administering, and overseeing our comprehensive SMS. Each manager is responsible for implementing the SMS in their area of responsibility and is accountable for performing SMS activities. All employees and contractors support safety performance by identifying and reporting safety concerns. Our Executive Team leads a culture that promotes safe operations and provides appropriate resources to support SMS, which includes fostering safe practices, encouraging effective employee safety reporting and communicating openly about safety.

Safety Communication

This Safety Management Policy Statement is communicated throughout the SFMTA. Communication systems are in place to promote safety communication up, down, and across the organization including Safety Bulletin Boards in each Division.

Employee Safety Reporting Program

The SFMTA has an employee safety reporting program for safety concerns. This program ensures that no action will be taken against any employee who discloses a safety concern through the employee safety reporting program, unless disclosure indicates an illegal act, gross negligence, or deliberate or willful disregard of regulations or procedures.

We appreciate everyone's contributions to enhance the safety of our employees and all roadway users."

Signed:
Jeffrey Tumlin
Director of Transportation

4.2 Communication of the Safety Management Policy

SFMTA's Safety Management Policy communicates the agency's commitment to safety. SFMTA's Safety Management Policy is communicated to all SFMTA employees, managers, and executives throughout the agency, as well as SFMTA's contractors and to the Board of Directors. The Safety Management Policy is accessible at:

1. SFMTA Intranet – SFMTA personnel may access the Safety Management Policy electronically at Safety Policy
2. SFMTA Internet – SFMTA contractors may access the Safety Management Policy electronically at the SFMTA internet website.
3. Employee Handbook – All existing employees will receive a copy of the Safety Management Policy to attach to their existing Employee Handbook.
4. Safety Bulletin Boards – The Safety Management Policy is posted on each Safety Bulletin Board located at each SFMTA Division.
5. New Employee Orientation – The Safety Management Policy is presented at the new employee orientation process.
6. Employee SMS Training – During each SMS training session, SFMTA provides copies of the Safety Management Policy to employees.

4.3 Employee Safety Reporting Program

SFMTA has a comprehensive Employee Safety Reporting Program where employees may report safety conditions and concerns, confidentially if desired, to senior management. Under the agency's employee safety reporting program, employees and contractors may report safety concerns using either a web-based Employee Safety Reporting Program database, a hotline, a form-based reporting system, or direct reporting to Senior Management through one of the safety committees.

Under the agency's SMS, all employees have an obligation to report safety concerns and conditions to their management. SFMTA's Employee Safety Reporting Program allows employees protection from reprisal and the ability to report safety conditions and concerns anonymously. However, reports of employee behavior deemed to be an illegal act, gross negligence, or a deliberate or willful disregard for regulations, procedure or rules, are not eligible for protection from reprisal and are subject to discipline.

SFMTA Safety staff use the data collected through the Employee Safety Reporting Program to identify safety-event trends, unsafe conditions and hazards, and operators who exhibit unsafe behavior or poor skills. When data trends indicate unsafe behavior or poor skills, the Safety Division makes recommendations to Transit Management for improving that performance. If the data indicates that hazards exist, the Safety Division will use the tools of Hazard Analysis and Risk Assessment under Safety Risk Management to rate and prioritize those hazards. Where these tools reveal that unacceptable hazards exist, the Safety Division recommends immediate corrective actions to mitigate or eliminate the identified hazards.

Often, incidents are the result of unsafe behaviors of third parties, which are beyond the control of SFMTA, and for which mitigations may not feasible. Mitigations which have been put in place to control such behaviors include:

- Active train warning signs for motorists and pedestrians
- Bus operator barriers to reduce operator assaults

When the collection of data and analysis of the data indicates employee behavior within SFMTA's control, the Safety Division recommends improvements. Over a number of years based on the Safety Division's recommendations, SFMTA has implemented several enhancements on its bus and rail system including:

- Photo enforcement system
- Switch-signal aspect improvement
- On-board video-based, g-force activated, enforcement system on the bus fleet
- In-cab camera surveillance system

Safety data is exchanged with other transit agencies and is provided to external agencies as required.

4.4 Safety Goals

- Provide a level of safety in transit services that meets, if not exceeds, industry standards and practices
- Achieve Vision Zero by eliminating all transit related traffic deaths
- Identify, eliminate, and/or control hazards and their associated risks
- Continuously improve safety of our transportation system by incorporating innovative technologies
- Improve safety communication throughout the agency

4.5 Safety Authorities, Accountabilities, and Responsibilities

SFMTA's central approach to achieving safety goals and objectives requires all SFMTA personnel to be responsible for safety and take into consideration the safety implications of their decisions. SFMTA's SMS uses a proactive approach. Proposed modifications are evaluated from a safety perspective prior to implementation to ensure they do not introduce new hazards into our transportation system. The PTASP also requires that employees consider that their actions may affect the safety. All SFMTA employees are responsible for safety.

The following personnel have specific authorities, accountabilities and responsibilities:

4.5.1 Accountable Executive

SFMTA's Director of Transportation is the Accountable Executive and has the following authorities, accountabilities, and responsibilities under this plan:

- Control and direct human and capital resources needed to develop and maintain both the PTASP and SMS
- Designate a Chief Safety Officer
- Ensure that SFMTA's SMS is effectively implemented throughout SFMTA's public transportation system
- Monitor SFMTA's safety performance and address substandard performance by implementing mitigation measures
- Establish and implementation of the PTASP
- Carry out SFMTA's Transit Asset Management (TAM) Plan

4.5.2 SMS Executive

SFMTA Chief Safety Officer (CSO) is designated by the Accountable Executive as the SMS Executive. The SMS Executive is well experienced in rail and bus safety, meeting all the training requirement of 49 CFR 672.13 (Transportation Safety Institute's (TSI's) courses, including *Rail Incident Investigation, Rail System Safety, Effectively Managing Transit Emergencies,* etc., holds a direct line of reporting to the Accountable Executive and has the following Authorities, Accountabilities and Responsibilities under this plan:

- Implement the Agency's SMS and manage day-to-day SMS operations
- Address substandard safety performance
- Ensure SFMTA's policies are consistent with PTASP goals and objectives
- Brief the Accountable Executive and the Board of Directors on SMS progress and status
- Does not serve in any other capacity including maintenance or operations

4.5.3 SMS Leadership

The SFMTA Executive Team is designated as SMS Leadership by the PTASP. The SMS Leadership, who have a direct reporting relationship to the Accountable Executive, have the following authorities, responsibilities and accountabilities for the day-to-day implementation and operation of the Agency's SMS under this plan:

- Implement and operate SFMTA's SMS as it applies to their respective Division
- Allocate resources within respective Division to accomplish goals and objectives of PTASP
- Oversee Divisional day-to-day SMS operations
- Maintain compliance with the PTASP
- Modify policies consistent with implementation of the PTASP

4.5.4 Key Staff

Key Staff are critical to the successful implementation of the SFMTA's SMS. Key Staff are employees who directly oversee a division, facility, or craft. Key Staff have the following authorities, accountabilities, and responsibilities under this plan:

- Maintain the infrastructure or program within their area of responsibility
- Comply with the programs and processes identified within the PTASP
- Support development, implementation and operation of SMS within SFMTA's PTASP
- Coordinate all SMS activities
- Maintain documents that support the SMS processes and activities
- Review and investigate reports of safety concerns and conditions and establish and implement corrective actions, as appropriate, in a timely manner
- Investigate employee injuries and document findings of investigations
- Verify PTASP compliance and report deviations to the Executive Team

Additional operational and maintenance roles and responsibilities are outlined in Appendix C.

5.0 SAFETY RISK MANAGEMENT

Safety Risk Management is a cornerstone of SMS. During this process SFMTA identifies, evaluates, and devises means to eliminate, mitigate, or accept hazards. Not all hazards can be eliminated given the resources at hand. SFMTA's goal with Safety Risk Management is to mitigate hazards to a level as low as reasonably practicable. The processes outlined in this section describe SFMTA's approach for identifying, investigating, evaluating, mitigating or eliminating hazards. For more details, see Hazard Assessment SOP, which is included by reference.

The SFMTA has developed and implemented a Safety Risk Management (SRM) process comprised of safety hazard identification, safety risk assessment, and safety risk mitigation. The SFMTA Safety Risk Management (SRM) process involves identifying, reporting, assessing, and mitigating hazards affecting our transportation system.

The SFMTA SRM process is led throughout our agency by various employees including those involved in the initial design of street and transit systems, organizational changes, development of operational procedures, and the Safety Assurance process (described in Component 3.0), where newly identified hazards are analyzed and mitigated through the SRM process.

Upon identification of a safety concern or condition, the Safety Division will contact the appropriate SME for an initial review. If in the SME's opinion, the concern or condition is not hazardous, the Safety Division will document that finding in the Employee Safety Reporting Program database and, if it was reported by an employee, Safety will notify the reporting employee. If, on the other hand, the SME believes the concern or condition to be a hazard, the SME will perform a formal hazard analysis if appropriate and identify potential consequences. Otherwise, the SME will perform an evaluation.

Once complete, the SME will provide the hazard analysis to the Safety Division staff, who, in collaboration with the SME, will perform a safety risk assessment of the hazard's potential consequences. If the assessment determines that the safety risk is unacceptable, the Safety Division will then notify the responsible manager and request a corrective action plan. If the hazard was reported by an employee, the Safety Division will also notify the reporting employee of the results of the safety investigation.

Once the draft corrective action plan is developed, it is submitted to the SME for approval, with a copy to Safety who will obtain CPUC staff approval for applicable rail-related hazards. In cases where the safety concern can be remedied immediately this formal corrective action process is not required.

Once the corrective action plan is fully approved, the responsible manager will then mitigate or eliminate the hazard and document this in the Employee Safety Reporting Program database. Some of the methods the responsible manager may use to mitigate the consequences of a

hazard include implementing design changes, installing safety devices, installing warning devices or signage, or changing work practices or procedures to provide a level of safety that is practical with the available resources of SFMTA. Note: some mitigations require approvals beyond the authority of staff, such as the SFMTA Board of Directors, other City agencies or external agencies. In these situations, the SME and/or responsible manager will pursue the appropriate approvals, but ultimate approval is at the discretion of these agencies/legislative bodies.

Once the mitigation is implemented, the Safety Division will regularly monitor it to determine if the hazard has been adequately mitigated and no longer represents an unacceptable risk, close the hazard report in the Employee Safety Reporting Program database, and subsequently notify the reporting employee of the actions taken, if applicable. If the hazard was reported anonymously, the Safety Division will post the summary results of the reported hazard investigation on the Division Safety Bulletin Boards throughout the SFMTA.

5.1 Safety Hazard Identification

SFMTA identifies hazards through analyses of its streets and transit systems, operations, and operational environment and relies on data and information provided by the FTA and CPUC. SFMTA uses the following methods and processes to identify hazards:

1. Occupational injury or illness investigations
2. Safety Event investigations
3. Safety concern and condition employee reporting
4. Conducting ad hoc safety focus groups to address current safety concerns
5. Reviewing results of safety reporting trends
6. Routine and non-routine inspections
7. Internal and external FTA and CPUC audits
8. Lessons learned
9. Data and information provided by the CPUC or FTA in their inspection reports

The most significant method of identifying hazards is through the investigation of safety event investigations. Safety Division safety professionals investigate events, which meet the reporting thresholds of CPUC's GO 164 and the State Program Standard, to determine probable and contributory causes. Safety Division personnel collect and analyze data from safety event scenes and other location. Some of the data they review include on-board and platform video footage, statements made by involved employees and witnesses, maintenance records, and the opinions of SME's. If the Safety Division investigators and SME's determine the safety event was caused by a hazard, they use the Safety Risk Mitigation process described below to eliminate or mitigate the discovered hazard through the opening and completion of corrective action plans.

SFMTA has also adopted a robust Employee Safety Reporting Program where employees can report safety concerns and conditions to Senior Management. These include a web-based

Employee Safety Reporting Program database, a hotline, a form-based reporting system, and direct reporting to Senior Management. Safety and SME's review these reports to determine if the safety concerns are actual hazards.

5.2 Safety Risk Assessment

The SFMTA, through the Safety Division and SMEs, assesses the safety risk of the potential consequences of each hazard identified.

To assess the safety risks, SFMTA has established its own standards for determining the likelihood and severity of the potential consequences based on the SFMTA's unique transportation system. Once unacceptable hazards and the potential consequences are identified, the Safety Division assesses the risk of the potential consequences. This includes evaluating the likelihood and severity of the potential consequences.

SME's then determine the necessary mitigation. Responsible managers complete these mitigations to effect hazard resolution. Hazard resolutions are tracked and managed throughout the entire Safety Risk Management process using a combination of methods including the agency-wide safety management database and Safety-Risk Register shown in Appendix D.

5.2.1 Likelihood of Potential Consequence

Likelihood represents the chance that the potential consequence of the hazard will occur. SFMTA categorizes the likelihood of the potential consequence occurring as frequent, probable, occasional, remote or improbable based on thresholds shown in the table below. For example, a broken rail (hazard) could result in a derailment (event) causing death, injury and severe property damage (consequence). The likelihood of this potential consequence occurring is frequent because a broken rail will cause a derailment every time a train goes over it if there are no measures in place to mitigate this.

Table 5-1: Likelihood of Potential Consequence

Likelihood		
Description	**Level**	**Criteria**
Frequent	A	Likely to occur often in the life of an item. Continuously experienced in the fleet/inventory
Probable	B	Will occur several times in the life of an item, will occur frequently in the fleet
Occasional	C	Likely to occur sometime in the life of an item. Will occur several times in fleet/inventory
Remote	D	Unlikely, but possible, to occur in the life of an item. Unlikely but can reasonably be expected to occur in the fleet/inventory

Improbable	E	So unlikely, it can be assumed occurrence may be experienced. Unlikely to occur, but possible in fleet/inventory
Eliminated	F	Incapable of occurrence

5.2.2 Severity of Potential Consequence

Severity represents how bad the potential consequence of the hazard will be. The SFMTA categorizes the severity of the potential consequence of a hazard as catastrophic, critical, marginal or negligible based on the thresholds shown in the table below. For example, a broken rail (hazard) resulting in a derailment (event) could cause death, permanent disability, and severe property damage (consequences). The severity of this potential consequence would be catastrophic because it could cause death, injury, or severe property damage.

Table 5-2: Severity of Potential Consequence

Severity Categories		
Description	**Level**	**Criteria**
Catastrophic	1	Could result in death, permanent total disability, property damage exceeding $3M or irreversible severe environmental damage that violates law or regulation.
Critical	2	Could result in permanent/partial disability, injury or illness that may result in hospitalization, property damage between $200K and $3M or reversible environmental damage causing a violation of law or regulations
Marginal	3	Could result in injury or illness resulting in one or more lost workday(s), property damage between $10K and $200K or mitigatable environmental damage without violation of law or regulation.
Negligible	4	Could result in injury or illness not resulting in a lost workday, property damage between $2K and $10K or minimal environmental damage.

5.2.3 Risk Assessment

The SFMTA combines the severity levels with the likelihood to determine a risk assessment score which is then used to prioritize the hazard. Those scores are shown in the Risk Assessment Table below.

Table 5.3: Risk Assessment

	Risk Assessment Matrix			
	Hazard Categories			
Likelihood	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
(A) Frequent	High (A1)	High (A2)	Medium (A3)	Medium (A4)

(B) Probable	High (B1)	High (B2)	Medium (B3)	Low (B4)
(C) Occasional	High (C1)	High (C2)	Medium (C3)	Low (C4)
(D) Remote	Medium (D1)	Medium (D2)	Low (D3)	Low (D4)
(E) Improbable	Low (E1)	Low (E2)	Low (E3)	Low (E4)
(F) Eliminated	Low (F1)	Low (F2)	Low (F3)	Low (F4)

5.2.4 Prioritization

Based on the risk assessment score, SFMTA prioritizes hazards for mitigation or elimination as follows:

Priority #1 Consequence will occur frequently, probably, or occasionally with catastrophic or critical severity (A1, B1, C1, A2, B2 or C2).
Priority #2 Consequence will occur frequently, probably, or occasionally but with catastrophic, critical, marginal or negligible severity (D1, D2, A3, B3, C3 or A4).

Priority #3 Consequence will occur remotely or improbably with catastrophic, critical, marginal, or negligible severity (E1, F1, E2, F2, D3, E3, F3, B4, C4, D4, E4, or F4).

Table 5-4: Prioritization

Safety Risk Priority	Criteria
Priority #1	Unacceptable – Action Required Safety risk must be immediately mitigated or eliminated
Priority #2	Undesirable – Management Decision: Executive Management must decide whether to accept safety risk with monitoring or require additional controls
Priority #3	Acceptable with review Safety risk is acceptable pending management review

The Safety Division will document identified hazards and track their mitigations in a Safety Risk Assessment Register. An example of the Safety Risk Assessment Register is included as Appendix D.

In accordance with the requirements of CPUC's GO 164, if SFMTA determines that a hazard involving our rail system meets the definition of "unacceptable," the Safety Division will notify CPUC, using CPUC web-based reporting system, and involve CPUC staff in the investigation and approval of the Correction Action Plans.

5.3 Safety Risk Mitigation

The SFMTA has processes and methods in place to identify mitigations and implement strategies to reduce the severity and likelihood of the consequence and in turn reduce the agency's safety risks (see Hazard Assessment SOP for details.)

As noted in Section 5.1 once the responsible manager completes a corrective action plan, they will submit it to the SME for approval, with a copy to Safety. The Safety Division will submit the corrective action plan to CPUC staff for approval by e-mail and in accordance with GO 164, if rail related. Once the corrective action plan is approved by the CPUC, Safety will inform the responsible manager who will then mitigate or eliminate the hazard and document this in the Employee Safety Reporting Program database.

In the event that SFMTA identifies a hazard that must be mitigated immediately on an emergency basis the SMS Executive can authorize a responsible manager to take immediate corrective action before review and approval by CPUC staff. The Safety Division will provide the CPUC staff timely notification by e-mail of the corrective action taken on an emergency basis, so that CPUC staff can review and approve the corrective action.

Some of the methods the responsible manager may use to mitigate the consequences of a hazard include implementing design changes, installing safety devices, installing warning devices or signage, or changing work practices or work procedures to provide a level of safety that is practical with the available resources of SFMTA. Mitigations may also include modification of equipment or facilities design, changes to maintenance schedules or practices, revision of operating rules or procedures, employee training, relocation and redesign of bus stops, modifications to rail stations, installation of traffic control devices or traffic signs, pavement markings, and street design.

Safety regularly monitors mitigations to determine if the hazard has been reduced to an acceptable level, and no longer represents an unacceptable risk. (See Monitoring Mitigation Plans in the Safety Assurance Section 6.0.)

Safety will close the hazard report in the Employee Safety Reporting Program database and notify the reporting employee of the actions taken, if applicable. If the hazard was reported anonymously, the Safety Division will post the summary results of the investigation and mitigation for the reported hazard on the Division Safety Bulletin Boards throughout the SFMTA. Every month, the Safety Division will provide CPUC staff with a report concerning the progress in completing corrective action plans.

5.3.1 Corrective Plan Contents

Responsible managers will develop corrective actions plans to minimize, control, correct, or eliminate the risks of hazards identified through the Risk Assessment Process. The corrective action plan must contain a description of the corrective action, the schedule for completing the corrective action, and the individuals responsible for completing the corrective action.

6.0 SAFETY ASSURANCE

SFMTA's safety assurance processes ensures the agency monitors its operations to identify any safety risk mitigations that are ineffective, inappropriate, or were not implemented as intended and ensures the agency fulfills its safety objectives and complies with regulatory requirements. SFMTA accomplishes this by employing safety performance monitoring and measurement processes including systematic collection, analysis, and assessment of data, as well as internal safety audits, rules compliance testing, facilities and equipment inspections, maintenance audits and inspections, event investigation, and drug and alcohol testing. ,If SMS Executive learns of any unresolved safety deficiencies through the safety assurance processes, he/she informs the Accountable Executive. Under the direction of the Accountable Executive, the SFMTA develops and carries out plans to address and resolve those deficiencies.

SFMTA's management of change processes ensure the agency identifies the safety impact of any changes to the transportation system. Processes such as safety certification, configuration management, procurement, and system modification enable the agency's safety program continues to remain effective even as our operating environment changes. Procedures designed to ensure that safety risk mitigations are effective to collect safety performance data help SFMTA predict future safety events to mitigate and prevent them, and to analyze the safety risks of any new practices or procedures that the SFMTA adopts.

SFMTA's continuous improvement processes enable the agency to monitor its mitigations using feedback loops identified by way of safety data acquisition and analysis and corrective action plans.

SFMTA ensures that Safety Assurance is maintained through efforts in three core areas:

1. **Safety Performance Monitoring and Measurement** – SFMTA relies on data and established processes and activities to ensure the implementation and effectiveness of safety risk mitigations.
2. **Management of Change** – SFMTA evaluates the safety impact on our transportation system arising from in regulatory changes, service changes, new technology, new processes or procedures, or new employee labor agreements to name a few.
3. **Continuous Improvement** – SFMTA regularly assesses our safety performance data and addresses any identified deficiencies through corrective action plans.

6.1 Safety Performance Monitoring and Measurement

6.1.1 Safety Data Acquisition and Analysis

SFMTA's safety data acquisition and analysis process is used to monitor the safety performance of our transportation system. SFMTA collects and analyzes data from throughout the agency. Data analysis includes identifying lagging indicators to assess the probability and

contributing causes of safety events and leading indicators to proactively identify conditions that may affect safety performance.

The SFMTA continuously analyzes bus and rail safety data acquired from various sources, including TMC operational logs, incident reports, defect cards, and employee reports through the Employee Safety Reporting Program, internal safety audits, external audits, incident investigations, efficiency testing results, video-based enforcement monitoring reports, facility inspections, and compliance checks. The data gleaned from these activities is used by SFMTA to assess the performance and effectiveness of the agency's rail operational processes and the SMS.

6.1.1.1 Data Collection and Reporting Requirements

Workers' Compensation Program

Workers' Compensation Program (WC), administered by a third-party administrator, manages claims administration. Detailed oversight by the administrator, provides proactive mitigation of the frequency and severity of workers' compensation injuries. The WC Program also provides monthly management reports and analyses of WC data and collaborates with Industrial Safety and Environmental Compliance to assist in maintaining safe working conditions at SFMTA.

Safety Division

The Safety Division analyzes safety data to monitor SFMTA's SMS**.** Each Division, division, or work unit within SFMTA is responsible for providing the Safety Division with data requested on topics including, but not limited to:

- Safety Events (accidents, incidents, and occurrences)
- Customer Complaints
- Maintenance Activities
- Supervisory Interactions

SFMTA monitors its system to ensure compliance with, and sufficiency of, our rules and procedures relating to operations and maintenance. SFMTA collects the data to demonstrate the effectiveness of our operational processes and the SMS. SFMTA gathers data from processes which monitor its bus and rail systems for safety and regulatory compliance. If through the monitoring processes, the agency identifies a potential hazard, the Safety Division is notified so the hazard may be evaluated, assessed, and mitigated through the Safety Risk Management Process (see the Hazard Analysis SOP).

6.1.2 Safety Performance Measures

SFMTA uses bus and rail Safety Performance Measures based on the measures established under National Public Transportation Safety Plan (NPTSP), to monitor the safety of its

transportation system. These measures will be evaluated over a fiscal-year period with an initial target baseline of Fiscal Year 2021 (7/1/2020 – 6/30/2021). These performance measures will be reported monthly at the SMS Senior Management Committee (SMSSMC) meeting. (See Appendix B for the performance measures and targets.)

6.1.3 Employee Safety Reporting Program

As noted in 4.3 above, SFMTA has established a robust Employee Safety Reporting Program. SFMTA uses information gathered from its Employee Safety Reporting Program to monitor the safety performance of its transportation system. Safety concerns and conditions reported confidentially or not, through the Employee Safety Reporting Program, are monitored and analyzed by Safety staff.

SFMTA Safety staff use the data collected through the Employee Safety Reporting Program to identify safety-event trends, unsafe conditions and hazards, and operators who exhibit unsafe behavior or poor skills while operating bus or rail vehicle. When data indicate unsafe behavior or poor skills, the Safety staff will recommendations Transit Management pursue improvement in the operator's performance. If the data indicates that a hazard exist, the Safety staff will initiate the Safety Risk Management process by coordinating the completion of a preliminary Hazard Analysis and Risk Assessment. Where these tools reveal that unacceptable hazards exist, the Safety Division recommends immediate corrective actions to mitigate or eliminate the identified hazards.

Often, incidents are the result of unsafe behaviors of third parties, which are beyond the control of SFMTA, and for which mitigations may not feasible. Mitigations which have been put in place to control such behaviors include:

- Active train warning signs for motorists and pedestrians
- Bus operator barriers to reduce operator assaults

When the collection of data and analysis of the data indicates employee behavior within SFMTA's control, the Safety Division recommends improvements. Over a number of years based on the Safety Division's recommendations, SFMTA has implemented several enhancements on its bus and rail system including:

- Photo enforcement system
- Switch-signal aspect improvement
- On-board video-based, g-force activated, enforcement system on the bus fleet
- In-cab camera surveillance system

Safety data is exchanged with other transit agencies and is provided to external agencies as required.

6.1.4 Rail Continuous Monitoring

Safety and Transit Divisions monitor rail operational data (e.g. TMC operational logs, incident reports, defect cards, and reports from the Employee Safety Reporting Program) to measure

the effectiveness of safety risk controls, assess SMS system performance and identify potential hazards. SFMTA Project Managers who employ contractors and sub-contractors, monitor these service providers for compliance with our SMS and PTASP. For example, CP&C Project Managers routinely visit contractors' work sites and review contractors' activity report to determine if the contractors' activities comply with applicable regulations, do not introduce hazards into their workplace, and provide their employees with the necessary level of safety to comply with SFMTA's SMS. Through the technique of Field Observation and Feedback, SFMTA's management continually assesses the effectiveness of supervisory implementation of operations and maintenance rules and procedures.

6.1.5 Bus Continuous Monitoring

Safety and Transit Divisions monitor Bus operational data (e.g. TMC operational logs, incident reports, defect cards, and reports from the Employee Safety Reporting Program) to measure the effectiveness of safety risk controls, assess SMS system performance and identify potential hazards. SFMTA Project Managers who employ contractors and sub-contractors, monitor these service providers for compliance with our SMS and PTASP.

6.1.6 Bridges and Structures Continuous Monitoring

Capital Programs and Construction Division (CP&C) manages the Bridge, Tunnel, and Subway Inspection Program. Under this Program, CP&C monitors the condition of the bridges, tunnels, and subways that are the responsibility of the SFMTA and facilitates regular inspections of them to ensure they are structurally sound. CP&C documents, tracks, and implements repairs for any inspection findings.

6.1.7 Rail Quality Assurance

The SFMTA Transit Division has established a Quality Assurance program designed to determine if vehicle preventative maintenance inspections are performed in accordance with SFMTA and original vehicle equipment manufacturers standards. The Quality Assurance Unit regularly reviews transit rail vehicles which have just completed preventive maintenance (PM) inspections to determine if all the steps of the PM inspections have been correctly executed and completed.

6.1.8 Bus Quality Assurance

The SFMTA Transit Division has established a Quality Assurance program designed to determine if vehicle preventative maintenance inspections are performed in accordance with SFMTA and original vehicle equipment manufacturers standards. The Quality Assurance Unit regularly reviews transit vehicles which have just completed preventive maintenance (PM) inspections to determine if all the steps of the PM inspections have been correctly executed and completed.

6.1.9 Rail Preventive Maintenance

SFMTA's Rail Preventative Maintenance Program ensures the safety of our rail system and the prevention of mechanical failures. Rail preventative maintenance is based on established schedules for preventive maintenance of rail transit vehicles, track, signal, emergency ventilation, and other systems to ensure the state of good repair and the safety of our rail transit system. Details of the preventive maintenance programs are found in the Rail Vehicle Preventive Maintenance, Cable Car Preventive Maintenance, Track Preventive Maintenance, Signal Preventive Maintenance, Automatic Train Control Preventive Maintenance and Fire System Preventive Maintenance SOP's, which are incorporated by reference.

6.1.9.1 Rail Vehicle Preventative Maintenance

SFMTA, per our own internal requirements and those of the original equipment manufacturers, has a vigorous Preventive Maintenance Program for light rail vehicles, streetcars, and cable cars. The Rail Vehicle Maintenance Unit and Cable Car Maintenance Unit regularly inspect all rail vehicles at regular mileage intervals in order to identify and correct deteriorating conditions and potential hazards. This enables SFMTA to prevent mechanically related safety events as well as vehicle failures.

6.1.9.2 Rail Track and Signal Preventative Maintenance

SFMTA, per the requirements of the CPUC and the Federal Railroad Administration (FRA), has a vigorous Preventive Maintenance Program for its track and signal systems. The Track Maintenance Unit of Maintenance of Way regularly inspects all track on the surface and that in the tunnels and subway at regular intervals in order to identify and correct deteriorating conditions and potential hazards. The Signal Maintenance Unit of Maintenance of Way regularly inspects all signals and components of the train control system in tunnels, subway, and surface at regular intervals in order to identify and correct deteriorating conditions and potential hazards. The Track and Signal Preventive Maintenance Program enables SFMTA to prevent track and signal related safety events and rail system failures.

6.1.9.3 Rail Subway Fire Protection Preventative Maintenance

SFMTA, per the requirements of CPUC and the original equipment manufacturers, has a vigorous Preventive Maintenance Program for its Subway Fire Protection System. The Facility Maintenance Unit regularly inspects all subway fire protection systems regular intervals in order to identify and correct deteriorating conditions and potential hazards. This enables SFMTA to prevent failures of fire protection systems during emergencies in the subway.

6.1.10 Bus Preventive Maintenance

SFMTA's Bus Preventative Maintenance Program ensures the safety of our bus fleet and the prevention of mechanical failures. SFMTA, per the requirements of the California Highway

Patrol (CHP) and the original equipment manufacturers, has a vigorous Preventive Maintenance Program for its motor coaches and trolleybuses. The Bus Maintenance Unit regularly inspects all buses at regular mileage intervals in order to identify and correct deteriorating conditions and potential hazards. This enables SFMTA to prevent mechanically related safety events as well as vehicle failures. (See Motor Coach and Trolleybus Preventive Maintenance SOPs, which are incorporated by reference.)

6.1.11 Motive Power and Overhead Lines Maintenance

SFMTA ensures the safety of its Motive Power and Overhead Lines System through Preventive Maintenance. The Motive Power and Overhead Lines System provide traction power to SFMTA's light rail, streetcar, and trolleybus systems. Motive Power and Overhead Lines personnel regularly inspect transit power substations and overhead wires on the surface and in our tunnels and subway in order to o identify and correct deteriorating conditions and potential hazards. This enables SFMTA to prevent traction power failures and traction power related service interruptions (See Motive Power and Overhead Lines Inspection and Preventive Maintenance SOP, which is incorporated by reference.)

6.1.12 Rail Internal Auditing of SMS

SFMTA's Rail Internal Safety Audit Program ensures the agency assesses compliance with, and performance of all safety-related activities and responsibilities. SFMTA has historically audited rail operations in accordance with 49 CFR Part 659 and CPUC General Orders. The robust rail audit program developed under this framework has evolved following the release of 49 CFR Part 674 and will continue to evolve to ensure complete adherence to all CPUC requirements. SFMTA's Safety Division is responsible for overseeing the agency's Internal Safety Audit Program and is expanding of the audit process to include bus operations and maintenance, and paratransit.

6.1.12.1 Rail

Overview

In accordance with CPUC GO 164, the Safety Division has developed and implemented an internal auditing program. This auditing program facilitates the audit of all aspects of SFMTA rail operations every three years, ensuring that the agency is proactively identifying any discrepancies between written plans, policies and procedures and their implementation as well as compliance with SMS.

Elements Reviewed

SFMTA's internal audit review of elements of the PTASP, including the 23 elements identified in the CPUC Program Standard and detailed in CPUC GOs 164, 172, and 175. See Appendix G for the crosswalk matrix of 21 elements to the PTASP elements.) Specific policies and procedures reviewed includes the following:

- Safety Plan
  - Safety performance targets
  - Plan development, review, and updates
  - Emergency management program
- Safety Management Policy
  - Safety Management Policy Statement
  - Communication of the Safety Management Policy
  - Employee Safety Reporting Program
  - Safety Goals
  - Safety Authorities, Accountabilities and Responsibilities
- Safety Risk Management
  - Safety Hazard Identification
  - Safety Risk Assessment
  - Safety Risk Mitigation
- Safety Assurance
  - Safety Performance Monitoring and Measurement
  - Management of Change
  - Continuous Improvement
- Safety Promotion
  - Competencies and Training
  - Safety Communication
- Safety Plan Documentation and Recording
  - Reference Documents
  - Recordkeeping

Responsibilities

The Lead Safety Auditor is responsible for the performance of internal audits. The Lead Auditor and the audit team is organizationally independent of the process and Division being audited. Personnel completing the audit are responsible for providing written reports on audit findings to the System Safety Manager in a timely manner. At the beginning of each calendar year, the Lead Auditor is responsible for developing an audit schedule and providing a copy to CPUC staff. The Lead Auditor notifies the CPUC and provides copies of the checklists to be used in the administration of these internal audits, in compliance with the CPUC's Program Standard, no less than 30 days prior to the commencement of each audit and notifies CPUC staff before starting any audit. (For details of the ISAP, see the Internal Safety Audit SOP).

Once an individual audit is complete, the Lead Auditor develops a draft report, which is provided to the work-unit being audited. If there are disputes concerning the findings, the Lead Auditor and the work-unit's manager meet and resolve those differences. Once the findings are solidified in the draft audit report, the work-unit's manager provides the Lead Auditor with a corrective action plan for approval. Once the Safety Division approves the corrective action plan, the work-unit implements the corrective action. When the corrective action is complete, the Safety Division inspects and verifies completion of the corrective action.

Reporting to CPUC
The Safety Audit Unit is responsible for ensuring that the CPUC receives information related to all deficiencies identified during the course of internal audits including corrective actions related to those deficiencies. The Safety Division is responsible for providing updates on the status of all audit-related corrective actions to CPUC staff.

Annual ISAP Report
Under SFMTA's Rail ISAP, the Safety Division is responsible for developing an Annual Rail ISAP Report comprised of the individual audit report findings completed during the year. The Lead Auditor submits that report to the SMS Executive who approves and sends the annual audit report to the Accountable Executive. Upon the Accountable Executive's review and approval, the SMS Executive sends the Annual Rail ISAP Report to the CPUC staff on or before February 15.

6.1.13 Bus Internal Auditing of SMS

SFMTA's Bus Internal Safety Audit Program ensures the agency assesses compliance with, and performance of all safety-related activities and responsibilities. SFMTA has historically audited rail operations in accordance with 49 CFR Part 659 but under SMS and 49 CFR 673 has extended its Internal Safety Audit Program to include bus operations and maintenance.

6.1.13.1 Bus

Overview
The Safety Division has developed and implemented an internal auditing program for bus operations and maintenance. This auditing program facilitates the audit of all aspects of SFMTA bus operations and maintenance every three years, ensuring that the agency is proactively identifying any discrepancies between written plans, policies and procedures and their implementation as well as compliance with SMS.

Elements Reviewed
SFMTA Internal Safety Audit Program for bus reviews all element of the PTASP including:

- Safety Plan
  - Safety performance targets
  - Plan development, review, and updates
  - Emergency management program
- Safety Management Policy
  - Safety Management Policy Statement
  - Communication of the Safety Management Policy
  - Employee Safety Reporting Program
  - Safety Goals
  - Safety Authorities, Accountabilities and Responsibilities
- Safety Risk Management
  - Safety Hazard Identification

  - Safety Risk Assessment
  - Safety Risk Mitigation
- Safety Assurance
  - Safety Performance Monitoring and Measurement
  - Management of Change
  - Continuous Improvement
- Safety Promotion
  - Competencies and Training
  - Safety Communication
- Safety Plan Documentation and Recording
  - Reference Documents
  - Recordkeeping

Responsibilities

The Lead Safety Auditor is responsible for the performance of internal audits. The Lead Auditor and the audit team is organizationally independent of the process and Division being audited. Personnel completing the audit are responsible for providing written reports on audit findings to the System Safety Manager in a timely manner. At the beginning of each calendar year, the Lead Auditor is responsible for developing an audit schedule and providing that schedule to work-unit managers in the bus divisions.

An individual audit covers compliance with specific elements of SMS and requirements of the work-unit SOPs. Approximately one month before any scheduled audit, Safety notifies the work-unit manager and provides the audit checklist, which shows what the audit will cover and what questions the Lead Auditor will ask.

Once an individual audit is complete, the Lead Auditor develops a draft report, which is provided to the work-unit being audited. If there are disputes concerning the findings, the Lead Auditor and the work-unit's manager meet and resolve those differences. Once the findings are solidified in the draft audit report, the work-unit's manager provides the Lead Auditor with a corrective action plan for approval. Once the Safety Division approves the corrective action plan, the work-unit implements the corrective action. When the corrective action is complete, the Safety Division inspects and verifies completion of the corrective action.

Under SFMTA Bus ISAP, the Safety Division is responsible for developing an annual Bus ISAP Report comprised of the individual audit report findings completed during the year. The Lead Auditor submits that report to the SMS Executive who approves and sends the annual audit report to the Accountable Executive.

6.1.14 Outside Audits

SFMTA utilizes outside audit reports to assess its safety performance. SFMTA uses the information from audits, periodically performed by multiple outside agencies, including federal, state, City and County of San Francisco, and contractors, to assess our safety

performance. The information from these audits serve as a mechanism to identify and implement enhancements for continuous improvement. When these audit reports identify deficiencies, the Accountable Executive directs the Executive Team to implement corrective actions under the leadership of the Safety Division.

6.1.15 Rail External Auditing of the SMS

SFMTA considers the results of assessments performed by oversight agencies and other organizations (external contractors (external contractors, City and County of San Francisco Controller's Office) in its analysis of data to monitor the safety performance of its rail system. These external audits include but are not limited to the triennial audits by both FTA and CPUC.

6.1.16 Bus External Auditing of the SMS

These include results from the FTA triennial audits, and the California Highway Patrol annual terminal inspections at each bus division. These terminal inspections are conducted under the authority of the California Highway Code (California Code of Regulations Title 13).

6.1.17 Rail Safety-Event Investigation

The SFMTA has established procedures for investigation of Rail Safety Events, and potential regulatory non-compliance (e.g. GO 175 and 172) and uses the data collected from these investigations to identify new hazards or failures of previously implemented corrective actions. Appendix E provides details of the Safety-Event Investigation process.

6.1.17.1 Rail Reporting to CPUC and FTA

CPUC

In compliance with CPUC's GO 164 and SFMTA Safety-Event Incident Investigating Procedures, within two hours of a reportable Safety Event, the Safety Division notifies our SSOA, the CPUC, by telephone or web-based reporting on the preliminary details of the reportable safety event. Every 30 days, Safety Division submits a summary report (Form V) to CPUC staff detailing the total monthly reportable events. Within 60 days of a reportable event, The Safety Division conducts a comprehensive investigation and reports its findings to CPUC including details of the causal factors. Moreover, the Safety Division also submits monthly safety event data to the Federal Transit Administration via the National Transit Database (NTD).

FTA

SFMTA notifies FTA's Transportation Operations Center (TOC) in accordance with FTA's *Two-Hour Accident Notification Guide* for any safety event meeting two-hour notification requirements. SFMTA uses CPUC's Web Reporting system, which automatically notifies TOC when SFMTA submits a report meeting the two-hour notification thresholds.

6.1.18 Bus Safety-Event Incident Investigation

SFMTA conducts investigations of bus safety events under its Safety Event Investigation process (SEIP) to identify causal factors and to identify potential regulatory non-compliance as well as to identify new hazards or failures of existing corrective actions. The SOP for the bus SEIP is included in Appendix E.

6.1.18.1 Reporting to FTA

The Safety Division submits monthly safety event data for bus operations to the Federal Transit Administration via the National Transit Database based upon its comprehensive investigations of reportable safety events including details of the causal factors.

6.1.19 Rail Video-Based Enforcement and Monitoring

SFMTA's Rail video-based monitoring system ensures the agency monitors its rail system. Each SFMTA revenue rail vehicle, including cable-cars, is equipped with an on-board digital video surveillance system (VSS) that is programmed to record continuously. Cable-Cars have a single camera mounted in the front area near the grip-person. Each streetcar and LRV possesses between eight (8) to fifteen (15) color cameras, one of which is focused on the operator. All cameras are overt (visible) and enclosed in a vandal-resistant housing. Each vehicle is also equipped with two microphones located at the front and back of each vehicle. SFMTA uses this video-based system to supplement the random monitoring and enforcement of its operating rules. Safety Division staff utilizes the video-based system to observe a random sample of rail operators per month to determine compliance with the CPUC General Orders 172, 175, and SFMTA Rail Rules. Observations of other rule violations are also tracked and recorded.

Records of the observations from this video-based program are maintained for a period of three (3) years. Video recordings are maintained by the Video Surveillance Unit and made available to CPUC staff upon request.

6.1.20 Bus Event Recorder Video Monitoring

SFMTA's Bus Event Recorder Video program ensures the agency monitors the activity of operators while in revenue service. In addition to the onboard surveillance cameras, which continuously record activity on our buses, SFMTA buses are equipped with event-recorders, which are a proprietary gravitational-force based video monitoring that enables the agency to evaluate operator performance on the road. These event recorders are triggered, and as such begin recording video footage when the bus experienced g-forces of a certain magnitude. SFMTA is notified daily of these triggered events and evaluates them to determine if the operator is complying with applicable rules, training, and procedures. An operator may also manually trigger an event-recorder recording by pressing a button on the equipment. Behavior-based events that trigger the event recorder include a collision, speeding event,

rolling stop, fall on board, and sudden stop. A triggered event saves a minimum of 8 seconds of video prior to the trigger and a minimum of 4 seconds after the trigger for at least 12 seconds of video. Behavior-based events can also capture risky driving maneuvers such as hard braking, acceleration, turning, swerving, excess speeding. They can also capture quick safety actions by the operators, such as avoiding a pedestrian who darted into the street. Events that are not behavior-based such as running over a pot- hole, etc. are also captured.

The Safety Division reviews events daily and forwards as applicable to the bus division managers to ensure timely coaching/retraining or discipline for unsafe acts. Conversely, incidents observed wherein an operator is exhibiting outstanding defensive driving techniques result in a commendation to the operator.

6.1.21 Rail Facility Inspections

SFMTA's Rail Facility Inspection program ensure the agency monitors its rail system and maintains safety performance. Under the rail facility inspection program, regular safety inspections are conducted at each operating facility by ISEC personnel to identify and document unsafe conditions, work rules or work practices inconsistent with Federal, State, or local regulations as well as industry standards.

An ISEC rail facility inspection program is essential in order to reduce unsafe conditions that may expose staff and visitors to conditions that could result in injury or illness and expose property or capital assets to damage. It is the responsibility of ISEC to ensure that appropriate, systematic safety inspections are conducted periodically.

ISEC and SFMTA Buildings and Grounds personnel performs inspections on a regular basis of the rail maintenance facilities and shops using established inspection checklists. This includes inspection for hazardous conditions, safety violations, and condition of emergency equipment in accordance with their respective procedures.

ISEC and SFMTA Buildings and Grounds Inspection responsibilities include:

- Inspection of work areas for unsafe conditions, identification of unsafe practices and unhealthy conditions, and reporting and correcting conditions as appropriate
- Maintaining inspection records
- Taking appropriate corrective action(s)
- Reporting unsafe conditions and failures, both physical and operational, to appropriate management so the condition can be corrected and/or operational changes can be made
- Submitting hazard reports and proposed system modifications resulting from inspections to the responsible managers as well as the SMS Executive.

6.1.22 Bus Facility Inspections

SFMTA's Bus Facility Inspection program ensures the agency monitors its bus system to maintain safety performance. Under the bus facility inspection program, regular safety inspections are conducted at each operating facility by ISEC personnel to identify and document unsafe conditions, work rules or work practices inconsistent with Federal, State, or local regulations as well as industry standards.

An ISEC bus facility inspection program is essential in order to reduce unsafe conditions that may expose staff and visitors to unsafe conditions that could result in injury or illness and expose property/capital assets to damage. It is the responsibility of ISEC to ensure that appropriate, systematic safety inspections are conducted periodically.

ISEC and SFMTA Buildings and Grounds personnel perform inspections on a regular basis of the bus maintenance facilities and shops using established inspection checklists. This includes inspection for hazardous conditions, safety violations, and condition of emergency equipment in accordance with their respective procedures.

ISEC and SFMTA Buildings and Grounds Inspection responsibilities include:

- Inspection of work areas for unsafe conditions, identification of unsafe practices and unhealthy conditions, and reporting and correcting conditions as appropriate
- Maintaining inspection records
- Taking appropriate corrective action(s)
- Reporting unsafe conditions and failures, both physical and operational, to appropriate management so the condition can be corrected and/or operational changes can be made
- Submitting hazard reports and proposed system modifications resulting from inspections to the responsible managers as well as the SMS Executive.

6.1.23 Rail Rule of the Week Program

SFMTA's Rail Rule of the Week program ensures the agency rail operators understand and comply with safety rules while in revenue service. Every two weeks, under the "Rule of the Week" program, Transit Division issues important safety rules to the operators based on recent collision trends, recommendations received from Transit operating division managers, or in response to any findings from any regulatory agency. Transit Division management uses this program to remind operators of important selected rules.

6.1.24 Bus Rule of the Week Program

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trends, recommendations from division managers, or in response to any regulatory agency. Transit Division management uses this program to remind operators of important selected rules. The Transit Division uses the Compliance Check Program to evaluate the operators' compliance with these specific rules.

6.1.25 Fitness for Duty Program

SFMTA is committed to ensuring that employees and contractor personnel are fit for duty. Many factors can affect their overall fitness, including drugs and alcohol, fatigue, prescription drugs, and cognitive distraction.

SFMTA helps to ensure the safety of our transportation system through the Fitness for Duty Program. If an operator exhibits signs of medical conditions, which may affect their ability to safely control a bus or rail vehicle, the Director of Transit or designee must refer the operator to the Wellness Manager of Human Resources. The Wellness Manager schedules a medical exam and consultation with a physician of the Department of Public Heath (SF General Hospital). Until that operator is cleared for service by DPH, they cannot return to service. If DPH determines that the operator has a disqualifying medical condition, SFMTA's Director of Human Resources shall disqualify them from further service.

6.1.25.1 Fatigue Program

Fatigue can contribute to hazardous operations. SFMTA has implemented countermeasures to manage the risk potential. These measures include the following:

- Hours of Service Rules
- Medical Evaluation for Sleeping Disorders
- Awareness training for employees and contractors

6.1.25.2 Medical Monitoring Program

SFMTA has medical standards that apply to safety sensitive positions which include pre-employment medical examination, bi-annual exam and in some cases a follow-up examination to identify any physical or mental deterioration below thresholds established for safe performance of their duties.

In accordance with the requirements of Title 13 of the California Code of Regulations and CPUC GO 143, operators of both buses and rail vehicles must pass a pre-employment medical examination, bi-annual exam and in some cases a follow-up examination, which meets the requirements of the California Department of Motor Vehicles. SFMTA prohibits operators who cannot pass such an examination from operating both buses and trains.

6.1.25.3 Critical Incident Follow-up, Post Traumatic Stress

After significant incident, such as major safety events, SFMTA offers involved employees' referral to the Employee Assistance Program (EAP)

Transit personnel and emergency responders often face emotional trauma from serious safety events (PTSD). SFMTA provides access to health professionals to help counteract PTSD.

6.1.25.4 Substance Abuse Program

SFMTA's Substance Abuse Program applies to both employees and contractor and ensures that the agency has a drug free workplace. The Substance Abuse Program complies with all applicable state and federal regulations, governing workplace anti-drug use and alcohol misuse in the transportation industry. SFMTA monitors training of newly hired safety-sensitive employees to ensure that they receive informational materials on the dangers of substance abuse and the Employee Assistance Program.

These regulations include, but are not limited to the following:

- Department of Transportation (DOT) 49 Code of Federal Regulations Part 40, as amended (Procedures for Transportation Workplace Drug Testing Programs)
- Federal Transit Administration (FTA) 49 Code of Federal Regulations Part 655 (Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations)
- 41 U.S.C. Section 701-707 (Federal Drug-Free Workplace Act of 1988)
- California Government Code Section 8350. Et seq. (Drug-Free Workplace Act of 1990)
- CPUC General Order 143-B

SFMTA trains supervisors to fulfill their responsibilities as relates to the Substance Abuse Policy including assessing if an employee is under the influence of drugs or alcohol, ensuring employees participate in random, post-accident, and reasonable suspicion drug and alcohol screening.

The Transit Division uses information provided by the Substance Abuse Program to remove safety-sensitive employees from the system if they have tested positive on any properly administered drug and/or alcohol test.

6.1.25.5 Cognitive Distraction and Attentional Error

Cognitive distraction refers to an employee or contractor taking his/her mind off the job. One major cause of cognitive distraction is the use of personal electronic devices (PEDs), such as cell phones. SFMTA has implemented a Zero Tolerance, in compliance with G.O 172 for cell phone and PED use while on the job except in designated areas on SFMTA property.

6.1.26 Safety Committees

The SFMTA has established a variety of safety committees where safety issues and concerns are reviewed and discussed by staff from Safety, Transit, Sustainable Streets- including Traffic Engineering, and staff from other Divisions. These safety committees include:

- Division Safety Committees (DSC)
- Division Maintenance Safety Committees (DMSC)
- SMS Senior Management Committee (SMSSMC)
- Rules and Procedures Committee (RPC)
- Change Control Board (CCB)
- Chemicals Standards Committee (CSC)
- Fire/Life Safety Committee (FLSC)
- Safety/Security Certification Committees (SSCC)
- Transportation Advisory Staff Committee (TASC)
- Design Review Committees (DRC)
- IT Change Advisory Board Committee (CAB)

6.1.26.1 Division Safety Committees (DSCs)

SFMTA's monthly Division Safety Committees, at both the Bus and Rail operating divisions, give employees and division management a forum for exchanging information related to safety issues, programs, policies, and practices. Each DSC meeting consists of two parts. The first part of the monthly DSC meeting is chaired by the Safety staff and covers the safety concerns and safety conditions and potential hazards reported by division employees, tracking of any identified hazard through a Safety Risk Register, discussion safety programs for division employees, facilities, equipment, and operations, and discussion of proposed safety enhancements. The second part of the DSC meeting is chaired by the Service Planning staff and covers, among other things, route and schedule changes and engineering improvements to expedite transit.

6.1.26.2 Division Maintenance Safety Committees (DMSCs)

SFMTA's Division Maintenance Safety Committees at the Bus, Rail, and Maintenance of Way Units provides a forum for maintenance employees to raise critical safety issues for resolution. These meetings are chaired by maintenance staff with Safety Division staff members in attendance.

6.1.26.3 SMS Senior Management Committee (SMSSMC)

SFMTA's SMS Senior Management Committee supports the implementation of the SMS. The SMSSMC is chaired by the SMS Executive and includes Senior Management of the Transit Division, Security Division, Safety Division, Sustainable Streets Division, and CP&C Division. Central to the discussion are key performance indicators. The committee meets monthly.

Some of SMSSMC's specific safety tasks include:

- Reviewing programs to continuously improve safety performance and coordinate SMS activities
- Reviewing current safety concerns and safety conditions
- Discussing regulatory changes and mandates of SMS
- Reviewing when necessary any proposed corrective actions and recommendations
- Reviewing disagreements concerning the Internal Safety Audit Program
- Reviewing data acquisition and analysis
- Reviewing and discussing compliance test and efficiency test data
- Evaluating hazard resolutions proposed by other organizational units that are not related to Change Management or the activities of the Change Control Board
- Coordinating with the Change Control Board and Rules and Procedures Committee

6.1.26.4 Fire/Life Safety Committee (FLSC)

SFMTA's Fire Life Safety Committee (FLSC) ensures employees can evaluate and resolve fire and life safety issues in our bus and rail systems by verifying that system designs, operations, and modifications meet fire and life safety requirements, such as National Fire Protection Association (NFPA) 130 "Standard for Fixed Guideway Transit and Passenger Rail Systems." In this capacity, the FLSC coordinates with other SFMTA Divisions and outside agencies such as SFFD, SFPD, BART Police, CPUC, and other emergency response agencies to resolve fire/life safety issues. The FLSC is chaired by Transit Divisions' Mechanical Systems Manager.

Some of the typical functions of the FLSC include:

- Monitor compliance with fire/life safety requirements
- Serve as liaison between SFMTA, SFFD, SFPD, BART Police and other emergency response agencies
- Verify that SFFD, SFPD, DHS, BART Police and other emergency response agencies are familiar with SFMTA emergency procedures and have access to facility site maps
- Ensure that materials, equipment, and systems are appropriate for use and are maintained in a manner consistent with fire/life safety requirements
- Review City and County of San Francisco fire regulations/codes, building codes, building plans, vehicle specifications, fire protection systems, emergency procedures, emergency ventilation systems and procedures, and evacuation plans in order to ensure compliance with fire/life safety requirements
- Provide support for emergency exercises
- Review SFMTA and other transit agency incidents for lessons learned
- Provide support to Rail Operations as needed

6.1.26.5 Design Review Teams

SFMTA's CP&C Design Review Teams evaluate proposed construction projects to determine if any new hazards are posed by these projects before construction takes place and ensure that projects have eliminated or reduced hazards to an acceptable level upon project completion and that the project meets SFMTA's constructability requirements. Typically, the project CP&C Design Review Team evaluates the project at the 65% and 95% levels of design. After satisfying the internal requirements of CP&C, projects involving changes to SFMTA transportation system are submitted to the Change Control Board for approval and executive authorization. CP&C project managers inform the SMS Executive of activities of the DRCs and any approved design changes at the SMS SMSC.

SFMTA's Transit Division has established Design Review Teams for major transit capital projects, such as, LRV4. The Transit DRT's are administered by Transit's Manager of Program Delivery and Support.

6.1.26.6 Division Meetings

SFMTA's Division staff meetings are held by all Divisions and ensure the Division Directors communicate important topics to staff including information on the agency's safety performance. Safety issues and concerns are discussed at these meetings. This provides for an opportunity to promote safety performance and continuous improvement throughout the agency. Feedback from employees about what they are experiencing in the field and in the workplace is of vital importance for SFMTA and enables the agency to achieve its safety goals. Employees can describe their experiences and suggest solutions to issues that they encounter. Employees also get updates from their Division Director on safety of the transportation system.

6.2 Management of Change

Change is introduced into SFMTA's transportation system through new rail projects and extensions, rehabilitation of existing rail lines, new transit vehicle purchases, rehabilitation of existing vehicles, revitalization of streets where major rail or bus transit lines are located, introduction of new technology, organizational changes, and new or revised regulations.

The SFMTA has established processes for reviewing these changes and assessing the impact that these changes may have on the safety of our transportation system. These processes are change specific; SFMTA applies these processes depending on the nature of the change. Each of these processes includes reviewing the potential impact to our transportation system's safety that each change may introduce. When through these processes, the SFMTA determines that a change creates a potential hazard, SFMTA will not implement that change until the potential hazard is evaluated through the Safety Risk Management (SRM) process. These could involve new system designs, changes to existing system designs, new operations or procedures and modifications to operations/procedures. When a proposed change clearly does not create a hazard, the change will not involve the Safety process.

enables the SFMTA to learn lessons from its past safety experience. This, in turn, is passed onto employees through training and other forms of safety communication to continuously improve the safety of our transportation system. SFMTA's lessons learned culture enables the agency to develop new safety controls when necessary and adapt as our transportation environment The specific processes used to evaluate changes to our transportation system are described below:

6.2.1 Configuration Management

SFMTA's Configuration Management process ensures that all changes to facilities, equipment, systems, design elements, etc. are reflected in the "as built" drawings, related documents and detailed records of safety critical fleet changes. Additionally, as technology changes are introduced in SFMTA's transportation system, SFMTA documents the changes to ensure all SFMTA employees have an accurate, up-to-date picture of SFMTA's transportation system always. With all employees having accurate knowledge of the system's configuration, unsafe practices and unintentional introduction of hazards are avoided. This also ensure that project designers are fully aware of the current configuration before contemplating any changes.

6.2.2 System Modification Process

SFMTA's System Modification process ensures proposed modifications to our System are evaluated for hazards. SFMTA does not make changes to the Transportation System without first determining how the change might affect the safety of the bus and rail operations. Individual Divisions proposing system modifications first notify the Safety Division to obtain guidance and obtain approval. Most of the time, changes will require Change Control Board approval because they involve a change to the active transportation system. Changes to service design are reviewed and approved by the Transit Division under the direction of the Director of Transit.

6.2.3 Organization Change

Changes to the organizational structure, which involve staffing changes are submitted to the Executive Team for review to ensure that they do not adversely affect the safety the of the Transportation System. The Accountable Executive approves all such organizational changes.

6.2.4 Safety and Security Certification Process

SFMTA has established its Safety/Security Certification Program for all major transit project, which follows the requirements of FTA Circular 5800.1, and FTA's Manual of Safety/Security Certification of Major Transit Projects and CPUC GO 164, to self-certify that completed projects are safe, secure, and dependable. Under both FTA (bus and rail) and CPUC (rail) regulations, new projects, extensions, vehicle procurements, and installation of new technology involving transit operations may require safety and security certification. Under FTA requirements, new projects or extensions which have costs equal to or in excess of $100 million require full safety

and security certification. CPUC, however, approaches it from a safety view point instead of a dollar threshold. If a project impacts any safety-critical systems, even if it is below $100 million threshold, CPUC staff may want the project safety certified. Therefore, SFMTA must consult with CPUC staff to determine whether the project qualifies and must go through safety and security certification**.** (See LRV4 Safety/Security Certification Plan, the Central Subway Safety/Security Certification Plan and Safety/Security Certification SOP)

Each major project has its own Safety/Security Certification Committee (SSCC), which is responsible for overseeing the activities of the Safety/Security Certification process. The goals of the Safety/Security Certification process are to:

- Verify that acceptable safety levels are met or exceeded
- Document the verification of safety standards
- Provide a consistent manner to certify projects
- Ensure all hazards identified during Preliminary Engineering have been designed out or sufficiently mitigated at project completion
- Ensure all threats and vulnerabilities identified during Preliminary Engineering have been designed out or sufficiently mitigated at project completion
- Verify that when the project goes into revenue service, the public can expect the highest practicable level of safety and security.

6.2.5 Change Control Board (CCB) Process

SFMTA's Change Control (CCB) process ensures changes to our transportation system do not adversely affect its safety. This Change Control process applies to projects that do not qualify for the Safety/Security Certification process under both FTA and CPUC requirements. To facilitate the process, SFMTA has established its Change Control Board (CCB), which is chaired by Safety and is comprised of SME's from throughout the agency. The CCB SME's identify and assess changes that these projects may introduce new hazards and impact safety performance. The CCB has review and recommendation authority over proposed changes and is administered by the Safety Division.

If the CCB determines that a change might impact safety, then the change must be evaluated through the Safety Risk Management process including engaging an SME to determine whether the change introduces a hazard. Relevant changes that are addressed through the CCB process include:

- Regulatory requirements
- Design changes to the existing rail system
- Changes to rail and overhead line systems
- Vehicle design changes
- Changes to Train Operating software or design
- New Technology affecting the transit system

Through the Change Control Board, SFMTA is able to identify and assess changes that may impact SFMTA's safety performance. The CCB committee, which is chaired by the System Safety Manager, reviews and comments on proposed changes or modifications to our transportation system prior to implementation and evaluates whether any new hazards are posed by the proposed modifications. Sponsors of proposed changes must submit a change request application, including a detailed description and applicable engineering information, to the Change Control Board prior to the monthly meeting. When a meeting is held, the Sponsor presents the proposed change and any supporting documents to the members in attendance. The Sponsor is responsible for inviting SME's who can support the proposed change. The committee meets monthly. Once CCB has reviewed a change and recommends its implementation, it is forwarded to the Accountable Executive and SMS Executive for approval. (See Change Control Board SOP)

6.2.6 Rules and Procedures Committee (RPC)

SFMTA's Rules and Procedures Committee ensure operating and maintenance rules and procedures that affect safety are reviewed, updated when necessary, and approved to confirm their effectiveness and that they comply with regulatory and industry standards. SFMTA's transit operations are governed by bulletins, rules, notices, and SOP's. Bulletins are global in nature and provide direction to all employees; rules govern the daily operations of the transit system; and SOP's provide detailed information and instructions for performing specific tasks. All bulletins, rules, and procedures are reviewed and approved by the Rules and Procedures Committee (RPC).

Rules and SOP's may require modification as a result of the following:

- Safety bulletins
- Rulemaking from oversight agencies including but not limited to:
    - FTA
    - California Highway Patrol (CHP)
    - National Transportation Safety Board (NTSB), and
    - Cal OSHA
    - CPUC
- System configuration changes
- SFMTA service changes
- Changes to industry practices on comparable systems; and
- APTA recommended standards and practices

The Rules and Procedures Committee (RPC) reviews, evaluates, and approves new and revised bus and rail rules, SOP's, training manuals, and similar documents. An important part of the RPC's evaluation includes an assessment of whether any new hazards are posed by the proposed changes. The committee meets monthly.

The RPC, which is chaired by the System Safety Manager and is administered by the Document Control Manager, maintains all the SMS SOPs, training manuals, and operator rule books. It is

the responsibility of individual SFMTA Divisions to develop, update, and obtain all required signature for their SOPs. The SMS Executive has the final say on approval/disapproval for all proposed rule and procedures changes submitted to the Committee.

6.2.7 Information Technology Change Advisory Board (CAB)

SFMTA's Information Technology Change Advisory Board ensures monitoring of changes to our transportation information and control systems, including SFMTA's Automatic Train Control System (ATCS). Pursuant to the SFMTA IT Change Control Policy and Procedure, the CAB meets weekly under the direction of the Chief Technology Officer who serves as the Change Manager and has ultimate responsibility for the impact software and hardware changes have on SFMTA transit operations.

Under the CAB process, IT Change Coordinators are responsible for planning and coordinating all phases of software and hardware changes to the transit system from initiation to acceptance and documentation ensuring that the risks associated with software and hardware changes are controlled and minimized.

6.2.8 Procurement Process

SFMTA's Procurement process ensures that materials and services obtained by SFMTA maintain the safety standards of the transit system. This involves including safety requirements in contracts and obtaining Safety Data Sheets (SDS). The SDS include information on the properties of each chemical, the physical, health, and environmental health hazards, protective measures, and safety precautions for handling, storing, and transporting the chemicals.

The SFMTA SDS Program has established specific procedures for the acquisition and dissemination of information regarding hazardous materials. Approved SDS information can be obtained on-site at the facility where the product is used. Materials are evaluated by the Safety Division's Industrial Safety and Environmental Compliance unit (ISEC) for safety implications prior to purchase and/or use. When new materials or chemicals are delivered, the materials management unit verifies via SFMTA's enterprise asset management software system, that the item delivered has been previously approved. The facilities where the product is used must meet applicable state, federal, and local regulations for the proper labeling, storage, handling, and disposal of hazardous materials including documentation and record keeping requirements.

The procurement of transit vehicle parts must follow established procedures. Parts may not be substituted without prior authorization of Materials Management and Fleet Engineering and only if the substitution will not adversely affect the safety of any system.
Functions of the Materials Management Unit include:

- Ensure procurement process complies with established procedures for evaluating materials and products for use by SFMTA
- Ensure that products purchased meet SDS requirements, copies of SDS are delivered with all materials and that materials undergo an evaluation before purchase by the ISEC Unit is performed
- Develop, maintain, and utilize a list of hazardous materials and equipment; procurement enforces restrictions and other procurement procedures
- Adhere to safety procedures as defined by ISEC related to hazardous substance acquisition, handling, labeling, storage, disposal, and record keeping.
- Ensure that SDS requirements are met and copies maintained for all materials
- Ensure that contractors meet requirements related to the safety of SFMTA employees, property and the public

6.2.9 Transportation Advisory Staff Committee (TASC)

The SFMTA participates in the TASC, an interdepartmental committee to ensure that proposed legislation or street changes do not adversely affect the safety of our transportation system. The purpose of this committee is to provide a regular forum for key City of San Francisco agencies to review and comment on proposed changes to the public right-of-way. While this advisory board does not approve or disapprove items presented, the goal is to resolve any objections before item move forward. Committee members include representatives from SFMTA's Sustainable Streets Division, Transit Operations, Parking Enforcement, Taxi Services, Safety, San Francisco Planning, Public Works, and Police and Fire Departments. Proposed street changes are reviewed through TASC, which include, but are not limited to, certain color curb designation, lane striping/re-configuration, speed limits, bicycle parking, bicycle street parking, pedestrian and traffic signals, traffic and parking signage, and traffic calming and pedestrian safety measures. Any proposal presented at TASC must first undergo a staff review process, which includes review by an SSD Senior Engineer and City Traffic Engineer (or designee).

6.2.10 Chemical Standards Committee (CSC)

SFMTA's Chemical Standards Committee ensures for the qualification and introduction of new chemical commodities and the disqualification of existing chemicals. Information on chemicals is shared and oversight is provided by the CSC. This Committee is chaired by the ISEC Safety Officer. The CSC, along with Materials Management staff, reviews all requests to set up chemical products to ensure compliance with SFMTA's requirements. The CSC also reviews the current inventory catalog to confirm the chemical requested does not already exist in the SFMTA inventory under another name. The CSC Chair provides the SMS Executive with a monthly report of the committee's activities.

Chemical Standards Committee Functions:

- Control Chemical Inventory with Materials Management

- Reviews Procurement requests and purchases of new produces – with Materials Management
- Conducts Quality Assurance of new chemical products
- Reviews Safety Data Sheets for new products – with IS EC
- SDS Documentation – ISEC maintains SDS for all users and users maintain SDS onsite
- Maintenance Bus/Rail (Users/Testing)
- General Services Bus, Rail (Users/Testing)
- Material Planning (Set order points for divisions) – Material Control
- Industrial Safety & Environmental Compliance (Environmental Impact and Guidelines)

6.2.11 Bus Acceptance Process

SFMTA's Bus Acceptance process ensures that all new buses accepted into our fleet meet all SFMTA safety standards. Fleet Engineering and Acceptance Testing groups lead this process. Under the Bus Acceptance process, buses are inspected and accepted into the SFMTA Bus Fleet based on established industry safety standards. The goal is to verify that safety standards are met or exceeded in the design before being introduced into revenue service and do not introduce hazards into the System. A quarterly progress report is made available to the SMS Executive from Transit to provide the update of the Bus Acceptance process. (See Bus Acceptance SOP)

6.3 Continuous Improvement

Continuous improvement processes ensure SFMTA eliminates or mitigates to a level of "As Low as Reasonably Possible" identified safety risks. This critical element of the agency's SMS facilitates the tracking of safety risk mitigations and corrective actions through Monitoring Mitigation Plans (MMPs) and Corrective Action Plans (CAPs) from development through implementation, verifying that all identified deficiencies are appropriately addressed, MMPs and CAPs are developed by SME's and their work units based on information collected through the agency's safety performance monitoring and measurement processes and reflect the agency's commitment to continuously work to avoid or reduce safety risk and correct non-conformances with respect to our procedures and rules. The Safety Division staff continually monitor SFMTA operations to determine if any MMPs or CAPS developed to mitigate safety risks are ineffective, inappropriate, or not implemented as intended. In such cases the Safety Division staff will work with the affected SME or work unit and if required, the CPUC, to evaluate the implementation of alternative approaches or mitigations. If a deficiency is identified, SFMTA, under the direction of the Accountable Executive, develops and carries out a new corrective action to correct this deficiency.

6.3.1 Mitigation Monitoring Plans

Safety risk mitigations address the potential consequences of transit service delivery through the:

- Elimination of hazards
- Reduction of the likelihood of the potential consequences of hazards; and/or
- Reduction of the severity of the potential consequences of hazards if they were to occur.

Mitigation Monitoring Plans (MMP's) are a process used by SFMTA to systematically track the implementation of safety risk mitigations. Such mitigations may be implemented in response to safety hazards identified through employee reporting, event investigations and safety performance monitoring and measurement activities. For example, the refresher training of one or more employees on existing SFMTA rules and procedures is a safety risk mitigation activity.

The Safety Division is responsible for approving and tracking all MMPs.

6.3.2 Corrective Action Plans

Corrective Action Plans (CAPs) address deviations or violations in rules, polices, plans, or procedures. CAPs also address resolution or elimination of safety risks identified through the Safety Risk Assessment Process. At a minimum, all non-compliance findings identified through SFMTA internal audits and CPUC audits must be addressed using the CAP process in accordance with CPUC GO 164.

Sources of findings requiring the development of a CAP include, but are not limited to:

- Event investigations
- Audits
- Reviews
- Inspections
- Rules compliance testing
- Operational or mechanical failures;
- NTSB reports/
- FTA advisories;
- CPUC mandates

The Safety Division is responsible for approving and tracking all CAPs and receiving CPUC approval where applicable. To be considered for approval, each CAP must identify the action to be taken, an implementation schedule, and the SME and work unit responsible for implementing. Once approved by the Safety Division, the CAP will be logged in the Employee Safety Reporting Program database.

6.3.3 Safety Culture Assessment

It is important for SFMTA to continually assess its effectiveness on overall safety in order to ensure continuous improvement of the safety of our transportation system. We assess our safety culture using the following:

- Surveys of employee attitudes, opinions, and perceptions about safety
- Written questionnaires
- Face-to-face interviews
- Focus group interviews
- How SFMTA views errors and mistakes
- Ability to focus on improving safety instead of assigning blame
- SFMTA's proactive stance toward safety

6.3.4 Rail Efficiency Testing

SFMTA's Rail Efficiency Testing Program, led by Safety and required by GO 143, ensures that SFMTA employees have proper knowledge and application of rail operating rules and procedures. The Safety Division is responsible for implementing the Rail Efficiency Testing Program.

At the beginning of each year, Safety Division identifies several specific efficiency test scenarios which are scheduled throughout the year to test the skills of rail personnel
The Rail Efficiency Test Program is non-punitive, meaning no discipline will be implemented, because the goal is to identify operators who may need reminders concerning the application of appropriate rules, training and SOPs. In the event that an employee performs unsatisfactorily, a re-test of the employee is scheduled within 30 days.

6.3.5 Bus Efficiency Testing

SFMTA's Bus Efficiency Testing Program, led by Safety, ensures that SFMTA employees have the proper knowledge and application of bus operating rules and procedures. The Safety Division is responsible for implementing the Bus Efficiency Testing Program.

At the beginning of each year, Safety Division identifies several specific efficiency test scenarios which are scheduled throughout the year to test the skills of bus personnel. The Bus Efficiency Test Program does not involve discipline because the goal is to identify operators who may need reminders concerning the application of appropriate rules, training and SOPs. In the event that an employee performs unsatisfactorily, a re-test of the employee is scheduled within 30 days.

6.3.6 Rail Compliance Check Program

SFMTA's Rail Compliance Check Program, led by Transit and required by GO 164, monitors employee's conduct to ensure adherence to specific rules, procedures and skills while performing their regular work duties. Rail Compliance Checks include monitoring of rail operators, transportation controllers, and maintenance personnel. Results of compliance checks are recorded in the Employee Safety Reporting Program database.

Under the Compliance Check Program, Transit identifies a rule or procedure to be monitored for compliance. An individual compliance check includes observations made on how the employee adheres to an existing rule or procedure in the execution of their duties. If the employee fails to follow the appropriate rules, training, or SOP, this is communicated to the appropriate manager, for discipline or training. On-the-scene coaching may also occur, if appropriate.

While the Compliance Check Program is led by Transit, the Safety Division audits the Compliance Check Program to ensure it is administered consistency and effectively and the findings are reported to the SMS Executive and the Transit Division.

6.3.7 Bus Compliance Check Program

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While the Bus Compliance Check Program is led by Transit, the Safety Division audits the Compliance Check Program to ensure it is administered consistency and effectively and the findings are reported to the SMS Executive and the Transit Division.

6.3.8 Lessons Learned/Learning Culture

SFMTA fosters a "Lessons Learned Culture" to help establish a safety culture that learns from experience as documented in reports, audits, investigations, and other data sources. Analysis of the data changes.

7.0 SAFETY PROMOTION

SFMTA promotes safety through its Training and Communication Programs. The Agency offers a variety of safety training courses to ensure the safety of our employees, contractors, and the transportation system. SFMTA uses various methods to communicate safety and safety performance information to employees. Executive Management promotes the SFMTA's positive safety culture by visibly demonstrating their commitment to the SMS. SFMTA fosters active, open, and ongoing communication about safety. Employees are encouraged to communicate safety conditions and concerns to management, and in turn, management is required to respond timely to employees, mitigate hazards, and provide training, messaging, or other communication to promote a safety culture. Through this open dialogue, hazards are identified and analyzed, and employees are informed of what risks they may encounter and what SFMTA is doing to eliminate or mitigate the risk.

The SFMTA has established and implemented a comprehensive safety training program for all agency employees and contractors directly responsible for safety oversight in the agency's public transportation system. The training program includes refresher training, as necessary. SFMTA managers verify overall compliance with training, certification, and re-certification requirements as detailed in the Training Program Plan SOPS. For the SOP identification numbers, see Appendix H.

7.1 Competencies and Training

SFMTA's comprehensive safety training program for all employees and contractors directly responsible for safety oversight ensures the safety of our transportation system. The training program includes refresher training, as necessary.

7.1.1 Designated Employees

SFMTA has designated personnel directly responsible for safety oversight – defined as individuals whose primary job function includes the development, implementation, and review of the agency's safety plan, and/or investigation of Safety events on behalf of CPUC - are trained on the SMS principles which incorporates curriculum from the Public Transportation Safety Certification Training Program (PTSCTP), (49CFR672.13, 49CFR673.29 and 49CFR674.35) – over the three-year period following their designation. The curricula include the following Transportation Safety Institute (TSI) courses.

- SMS Awareness (one hour, e-learning);
- Safety Assurance (two hours, e-learning);
- SMS Principles for Transit (20 hours); and
- Transit Safety and Security Program (TSSP)
    - Transit Rail System Safety (36 hours)
    - Effectively Managing Transit Emergencies (32 hours); and
    - Transit Rail Incident Investigation (36 hours).

Following the conclusion of this training, designated personnel will complete refresher training that includes, at a minimum, one hour of safety oversight training.

7.1.2 Designated Contractors

Any contractors that SFMTA determines are directly responsible for the safety of the agency's systems must provide comprehensive safety training to their employees in accordance with their job function (including refresher training as necessary). Contractor safety training requirements may be contractually prescribed and may include requirements for training on site or project specific health and safety plans. The assigned internal project manager is responsible for regularly monitoring contractor compliance with SFMTA safety training requirements. All contractors performing work on or near the SFMTA rail system must also undergo the SFMTA RWP training.

7.1.3 Senior Management Personnel

All SFMTA management – defined as members of the Executive Team and Senior Management Team - are trained on a course offered by the Safety Division staff covering the SMS principles and including the following:

- SMS Safety Policy
- SMS Safety Risk Management
- SMS Safety Assurance
- SMS Safety Promotion

All Safety Management System training records are maintained in the Employee Safety Reporting Program database.

7.1.4 All Other Employees

Safety will provide all other employees with SMS Training either during new employee orientation or computer-based training.

7.1.5 Rail Operator Training

SFMTA's Transit Division has established and implemented a Rail Operator Training Program to provide training to transit operators in Light Rail Vehicles (LRVs), Historic Streetcars (HSCs), and Cable Cars**.** Training in each of these vehicles constitutes a separate training program with its own standards and requirements. These training programs meet the requirements of CPUC General Orders 164 and 143. In compliance with GO 164 and GO 143, rail operators for each mode (LRV, HSC, and Cable Car) must complete refresher training at least every two years. The Rail Training Unit records all training provided to rail operators in the Employee Safety Reporting Program database. A list of required training for Rail personnel can be found

in Appendix F. Rail operator training records are maintained in the Employee Safety Reporting Program database.

7.1.6 Bus Operator Training

SFMTA'S Transit Division provides Bus Operator Training to new Bus Operators in Motor Coach and Trolleybus. Training in each of these bus vehicles constitutes a separate training program with its own standards and requirements. The Bus Operator Training covers defensive driving, rules pertaining to safe vehicle operation, pre-trip and pre-operation inspections, emergency procedures, and injury and illness prevention. Re-training is provided to operators who have been involved in a safety event or failed an efficiency test conducted by the Safety Division staff. The Bus Operator Training Unit keeps records of all training provided to bus operators in the Employee Safety Reporting Program database. A list of required training for Bus personnel can be found in Appendix F. Bus operator training records are maintained in the Employee Safety Reporting Program database.

7.1.6.1 Verification of Transit Training

SFMTA'S Transit Division provides bus operators with an additional eight hours of training per year as required under the California Verification of Transit Training Program (VTT). This training is based on the Annual Verification of Transit Training Instructor's Manual and Syllabus maintained by the Transit Division Bus Operator Training Unit. VTT training records are maintained in the Employee Safety Reporting Program database.

7.1.7 Roadway Worker Protection Training

SFMTA provides Roadway Worker Protection (RWP) training to all employees and contractors working on or within a certain distance to the SFMTA Rail System in accordance G.O. 175 and SFMTA's Roadway Worker Protection Plan. The purpose of RWP training is:

- To identify the rail system operating practices and standards
- To ensure safe operation of the rail system
- To ensure the safety of all persons working on or about the rail systems

SFMTA provides Right-of-Way Access/Permit & Clearance Program to ensure the safety of rail roadway worker employees and contractors. Prior to performing work on SFMTA's bus or rail right-of-way, approval for the work proposed to be conducted must be attained from the TMC Senior Operations Manager (or designee). The process begins by attending a Right-of-Way Access meeting. The TMC Senior Operations Manager determines if the work to be performed will impact the movement of rail or bus transportation. In addition, TMC SOM will determine if the work necessitates any restrictions, and/or flagging, and/or reduced train speed, and if Roadway Worker Protection (RWP) training is necessary. The RWP class is conducted by the Safety Division or the Transit Maintenance unit. This RWP training is to familiarize wayside workers with the operating rules and safety hazards that they need to be aware of along the

rail right-of-way. Regardless, of whether the work is to be performed during revenue or non-revenue hours, all workers must follow the requirements of the Permit & Clearance Procedures administered by Transportation Management Center (TMC).

Safety Division is responsible for the RWP Training Program**.** RWP training records are maintained in the Employee Safety Reporting Program database.

7.1.8 Personal Electronic Devices Zero Tolerance Policy

SFMTA maintains a zero-tolerance policy, which prohibits the use of personal electronic devices (PEDs). This policy is in accordance with the requirements of CPUC General Order 172, Section 5. All operators and other safety sensitive employees are trained on the zero-tolerance policy and applicable rules. The policy prohibits the use of PEDs by employees and contractor personnel responsible for operating or controlling revenue and nonrevenue vehicles or performing work on or near the SFMTA right-of-way.

SFMTA Rail Rules 2.15.3 (Restrictions on Use of Personal Cell Phones in Right-of-Way) and Rule 2.15.4 (Restrictions on Use of Personal Cell Phones by Operators) and Rubber Tire Rule Book Rule 2.22.7 as updated in General Notice 2020-GN 021 prohibits and outlines the policy regarding the use of PEDs. Three incidents of noncompliance with the established rules and procedures will result in employee termination.

SFMTA uses a video-based monitoring system in the operating cabs and other areas of each LRV, streetcar, cable car, motor coach, and trolleybus. This system supplements the random monitoring and enforcement of its operating rules, policies, and procedures, including those that govern the use of electronic devices in compliance with General Order 172. A representative sample is monitored and logged by Safety as well as reviewed when there is a derailment, collision, complaint against the operator, report of noncompliance with personal electronic device policy. The video-based enforcement and monitoring log is maintained for a period of three (3) years.

7.1.9 Rail Vehicle Maintenance Training

SFMTA's Maintenance Training Unit provides training to all vehicle maintenance personnel in the LRV and Historic Streetcar modes. The Cable Car Maintenance Superintendent provides all training for vehicle maintenance personnel in the Cable Car mode. Rail maintenance training provides employees with information of how to effectively repair mechanical problems common to the specific rail vehicle. In addition, this training provides employees with the knowledge and skills to perform preventive maintenance designed to prevent equipment failures. Rail maintenance training records are maintained in the Employee Safety Reporting Program database.

7.1.10 Bus Vehicle Maintenance Training

SFMTA's Maintenance Training Unit provides training to all vehicle maintenance personnel in Motor Coach and Trolleybus modes. The maintenance training provides employees with information on how to effectively repair mechanical problems common to the specific bus vehicle. In addition, this training provides employees with the knowledge and skills to perform preventive maintenance designed to prevent equipment failures. Bus maintenance training records are maintained in the Employee Safety Reporting Program database.

7.1.11 Rail OSHA Training

SFMTA provides OSHA training to ensure the safety of our rail maintenance employees and contractors. The ISEC Unit conducts all OSHA- required training including Injury Illness Prevention. Topics include CPR/first aid, fall protection training, hearing conservation, confined space entry, and blood-borne pathogens. Rail OSHA training records are maintained in the Employee Safety Reporting Program database.

7.1.11.1 Rail OSHA Supervisor Safety Training

SFMTA's ISEC conducts OSHA Supervisor Safety Training for rail supervisors. Training includes supervisors' responsibility in implementing the OSHA Injury and Illness Prevention Program. All rail supervisors must complete this training at least once during their employment. Rail OSHA Supervisor Safety Training records are maintained in the Employee Safety Reporting Program database.

7.1.12 Bus OSHA Training

SFMTA provides OSHA training to ensure the safety of all our bus maintenance employees and contractors. The ISEC Unit conducts all OSHA required training including Injury Illness Prevention. Topics include CPR/first aid, fall protection training, hearing conservation, confined space entry, and blood-borne pathogens. Bus OSHA training records are maintained in the Employee Safety Reporting Program database.

7.1.12.1 Bus OSHA Supervisor Safety Training

SFMTA's ISEC conducts OSHA Supervisor Safety Training for bus supervisors. Training includes supervisors' responsibility in implementing the OSHA Injury and Illness Prevention Program. All bus supervisors must complete this training at least once during their employment. Bus OSHA Supervisor Safety Training records are maintained in the Employee Safety Reporting Program database.

7.2 Safety Communication

The SFMTA communicates safety and safety performance information throughout the organization conveying information on hazards and safety risks relevant to our employees'

roles and responsibilities. The SFMTA informs employees of safety actions taken in response to reports employees have submitted through our Employee Safety Reporting Program.

The PTASP is available to all employees. It is maintained in an accessible electronic file, available of the SFMTA intranet, and in paper copy in locations accessible to all employees.

SFMTA believes effective communication is important to build a more robust safety culture. SFMTA uses various methods to communicate safety and safety performance information to employees. As such, the SFMTA communicates safety and safety performance information throughout the agency using the following methods.

7.2.1 New Hire Orientation On-Boarding Safety Presentation

SFMTA provides New Hire Orientation to all new SFMTA employees and provides them with an "Employee Handbook" to communicate, among other things, the importance of safety. The Handbook contains a copy of the Safety Management Policy, outlining the SMS, informing employees of their responsibility to report safety concerns and conditions, and if desired can report confidentially without fear of reprisal. The Orientation also includes a safety training presentation by the SMS Managers. New Hire Orientation records are maintained in the Employee Safety Reporting Program database.

7.2.2 Safety Training

SFMTA's Transit Division provides a Safety Training Program for their employees which includes the communication of the importance of safety and instruction on identifying hazards that an employee may reasonably expect to encounter while performing their assigned tasks. The Safety Training Program records are maintained in the Employee Safety Reporting Program database.

7.2.3 Craft/Job Specific Training

SFMTA conducts training pertinent to the tasks that employees or contractors will perform, including those for maintenance of way workers, and customer service training. The training includes communicating the importance of safety and provides instruction on identifying hazards that these employees may reasonably expect to encounter. The Craft/Job Specific Training records are maintained in the Employee Safety Reporting Program database.

7.2.4 Safety Recurring TV Messaging

SFMTA uses video monitors at all transit operating divisions to communicate the importance of safety. These contain rolling safety messages, videos, or PowerPoint presentations to remind employees of various hazards they may encounter or special procedures they need to know in order to perform their duties safely.

7.2.5 Safety Banners

SFMTA uses safety banners to communicate the importance of safety to employees and contractors. For example, Safety Banners are used to count the number of days without a Safety Event, or number of days without a workplace injury that the division has experienced.

7.2.6 Safety Bulletin Boards

SFMTA provides Safety Bulletin Boards throughout the Agency, including all work areas, to communicate the importance of safety. These are located in conspicuous areas so that important safety information and results of hazard investigations can be communicated to employees. These boards contain applicable safety regulations, safety policies, and safety performance measures.

7.2.7 Division Safety Committees (DSCs)

SFMTA utilizes DSC meetings to communicate important safety concerns to employees and division management. The DSC's provide a forum for exchanging information related to safety issues, hazards, programs, policies, and practices. Each operating division has a DSC with the Safety Division staff as Chair.

7.2.8 Division Meetings

SFMTA utilizes Division Meetings to communicate the importance of safety and help the Agency comply with SMS Safety Communication requirements. All Divisions of the SFMTA hold regular meetings with their staff. Safety issues and concerns are an important agenda item at these meetings and provide an opportunity for employees at the various levels of the Agency to promote safety performance and continuous improvement.

7.2.9 Employee Work-Place Safety Program

The Employee Work-Place Safety Program consists of several programs designed to comply with OSHA requirements including:

7.2.9.1 Injury and Illness Prevention Program (IIPP)

SFMTA has developed and implemented an Injury and Illness Prevention Program (IIPP) to maintain a safe and healthful workplace for employees. The IIPP manual includes the following:

- Management commitment/assignment of responsibilities
- System for assuring employee compliance with safe work practices
- Safety communications system with employees
- Scheduled inspections/evaluation of workplace hazards

- Investigation of employee injuries and illnesses
- Procedures for correcting unsafe/unhealthy conditions
- Safety and health training and instruction

SFMTA's IIPP is designed to obtain input from employees and coordinate with labor unions and their local representatives. Contractors are expected to conform to industrial and occupational safety program requirements.

7.2.9.2 Safety Payday Communication

SFMTA provides Safety Payday Communications to all SFMTA employees to communicate important safety messages. Some of the topics include keeping safe in the workplace, avoiding heat exhaustion, mosquito bite prevention and safety, and general safety standards.

7.2.9.3 Safety OSHA Training Program

SFMTA utilizes the Safety OSHA Training Programs, described above, as an important venue for communicating OSHA-required industrial and work-place safety to employees

7.2.9.4 Hazardous Material Communication Program

SFMTA's Hazard Material Communication Program provides employees with information and training on chemical hazards, and procedures to control chemical hazards and exposures, within the workplace.

Procedures are in place to control hazards associated with procurement, storage, transfer, use, and disposal of hazardous substances. These procedures also address record keeping, and reporting requirements. Hazardous Material Plans are developed for each facility.

The Hazard Material Communication Standard Orientation includes training/or information on:

- OSHA Hazard Communication Standards
- Safety Data Sheets (SDS)
- Physical Health effects of hazardous materials used at SFMTA

7.2.9.5 Voluntary Protection Program (VPP)

The ISEC is leading the effort to become OSHA VPP-certified by doing safety awareness programs ("I am all in"), initiating Supervisor involvement in safety, Supervisor Training Program, safety campaigns, heightened safety awareness from front line staff to the executives.

8.0 SAFETY PLAN DOCUMENTATION AND RECORDS

8.1 Reference Documents

SFMTA's Safety Division maintains copies of its Standard Operating Procedures (SOPs), which document the processes and activities used to ensure implementation of SMS. These SOPs include but are not limited to:

- Employee training
- Hazard Analysis and Risk Assessment
- Safety-Event Investigations
- Compliance Checks
- Efficiency Tests
- Facility Inspections
- Performance Measure Results

AppendixH for a comprehensive list of all SMS SOPs. For further information about SMS Documentation and record keeping The SFMTA has documented and maintains, in paper or electronic form its safety policies, objectives, procedures, processes and SMS outputs as required under the PTASP.

8.2 Recordkeeping

SFMTA maintains documents that set forth our PTASP, including those related to the implementation of its SMS and results from SMS processes and activities. Many of these documents which are included by whole and by reference describe the programs, policies, and procedures that SFMTA uses to carry out our PTASP. These documents are made available upon request by the Federal Transit Administration or other Federal entity, or the CPUC or State Safety Oversight Agency jurisdiction. SFMTA maintains these documents in accordance with our document retention procedures, but at a minimum for three years after they are created.

SFMTA records results achieved from our SMS processes and activities. The records are legible, identifiable and traceable to each process or activity. All SMS records are maintained for a minimum of three years. These records include, but are not limited to:

- Employee training
- Hazard Analysis and Risk Assessment
- Safety-Event Investigations
- Compliance Checks
- Efficiency Tests
- Facility Inspections
- Performance Measure Results

8.2.1 Training and Certification Programs

All certification and recertification programs require written exams to verify knowledge; the organizational entities responsible for the development and implementation of training programs are also responsible for the establishment of minimum scores for certification and re-certification.

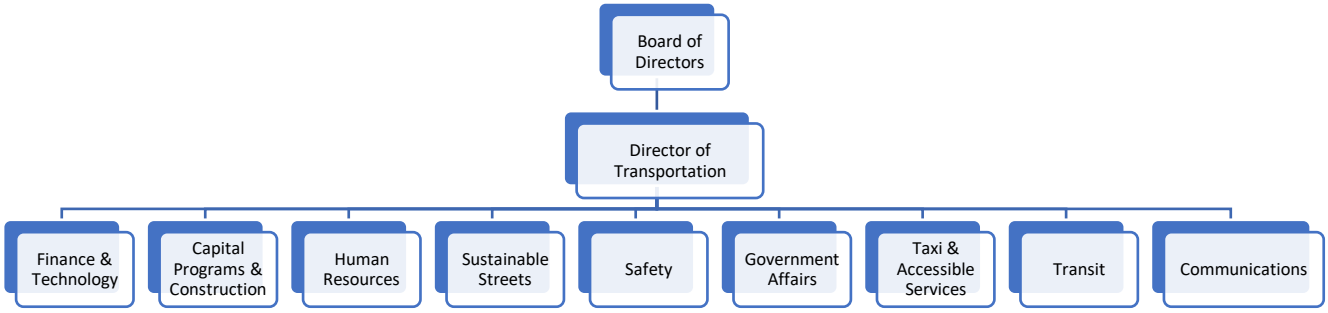
Maintenance Training maintains training records for all LRV, Historic Streetcar, motor coach, and trolleybus mechanics and technicians. The Cable Car Division maintains all training records for Cable Car vehicle mechanics and machinery technicians. Operator Training Unit maintains training records for all LRV, Historic Streetcar, Cable Car, motor coach, and trolleybus operators. A database of Roadway Worker Protection (RWP) student registers and exams is maintained by the Safety Division and so the certification status of any personnel entering right-of-way may be verified. Industrial Safety maintains OSHA training records of all employees.

APPENDICES

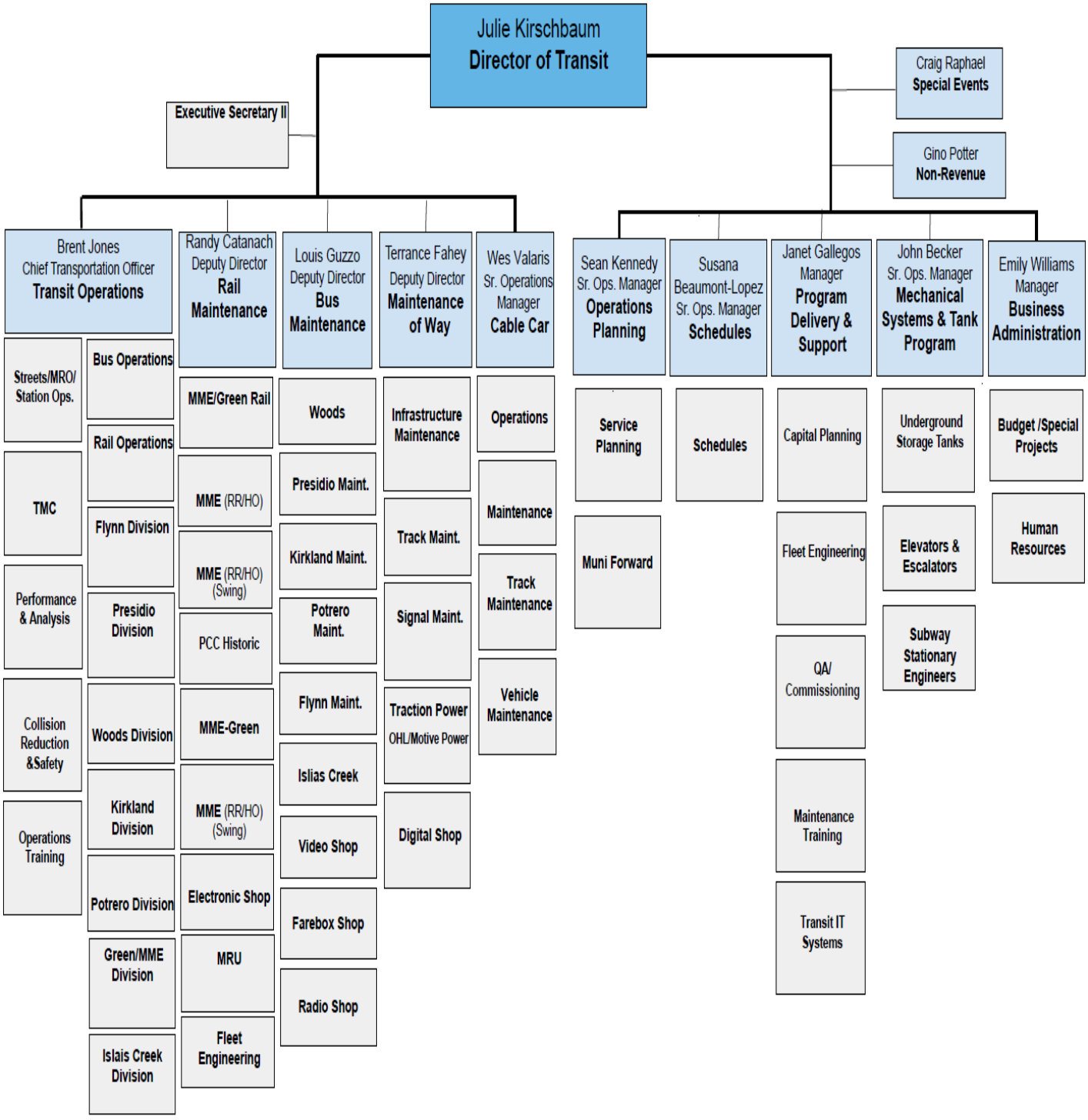
A. Organization Charts
B. Safety Performance Measures and Targets
C. Responsibilities of Transit Operations and Maintenance
D. Safety Risk Register
E. Safety-Event Investigation Procedures – Rail and Bus
F. Bus and Rail Operations Training
G. State Safety Oversight Elements with PTASP
H. Matrix of Standard Operating Procedures
I. System Diagram

APPENDIX A: ORGANIZATION CHARTS

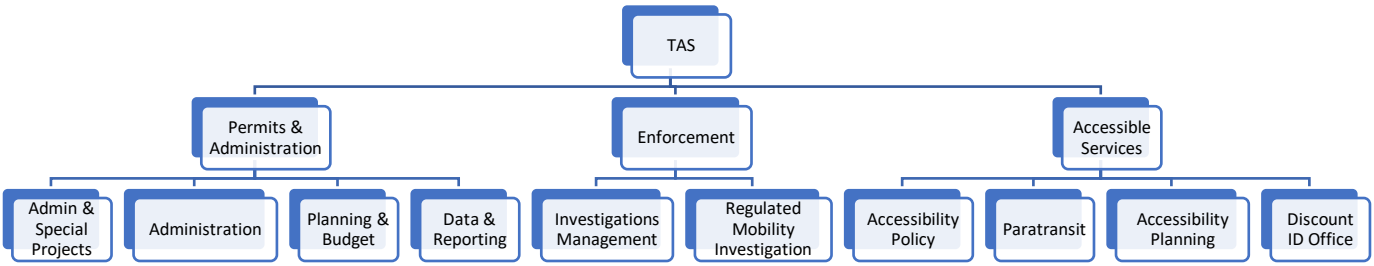
A-1 SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY



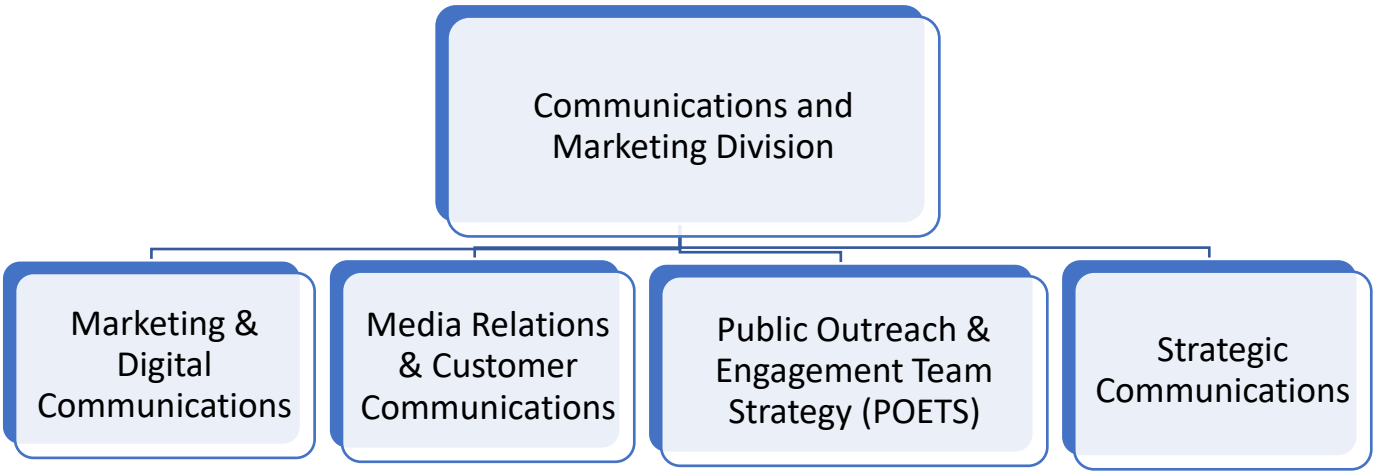
APPENDIX A2: ORGANIZATION CHART – TRANSIT DIVISION



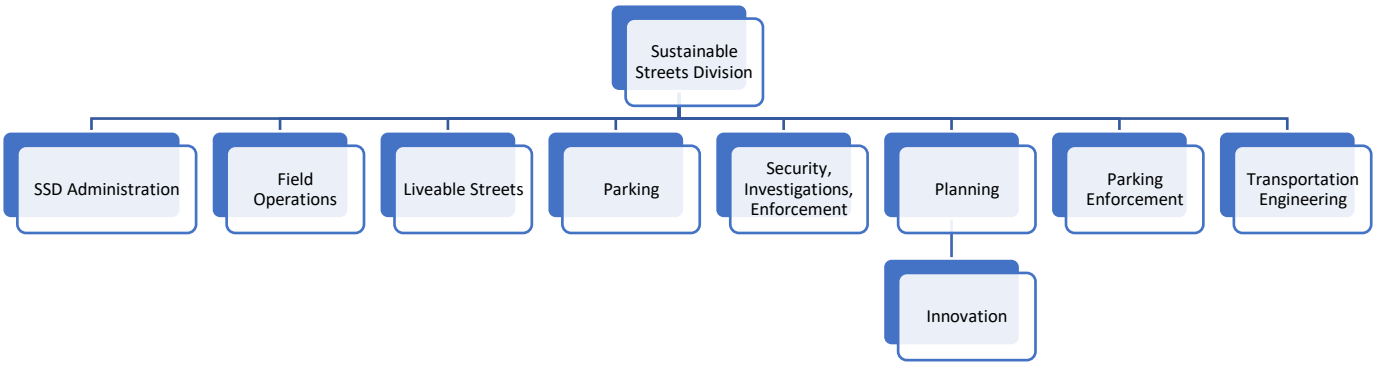
APPENDIX A3: TAXI AND ACCESSIBLE SERVICES



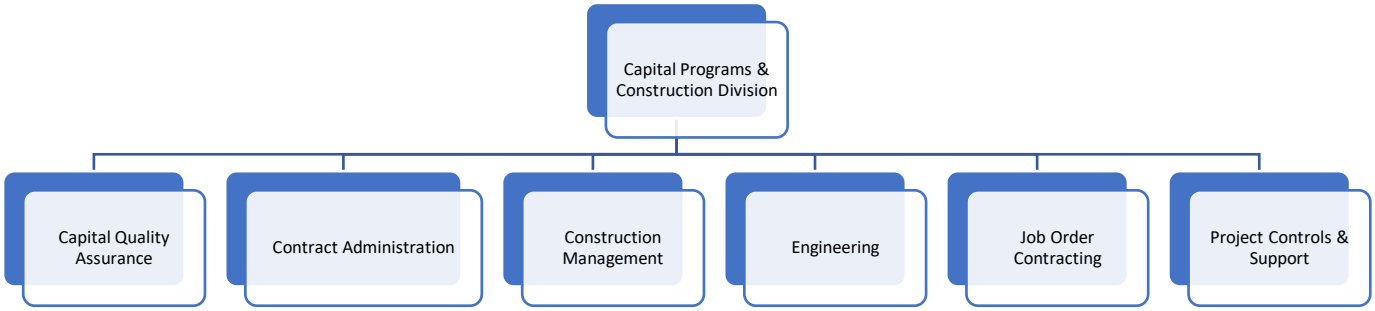
APPENDIX A4: COMMUNICATIONS AND MARKETING DIVISION



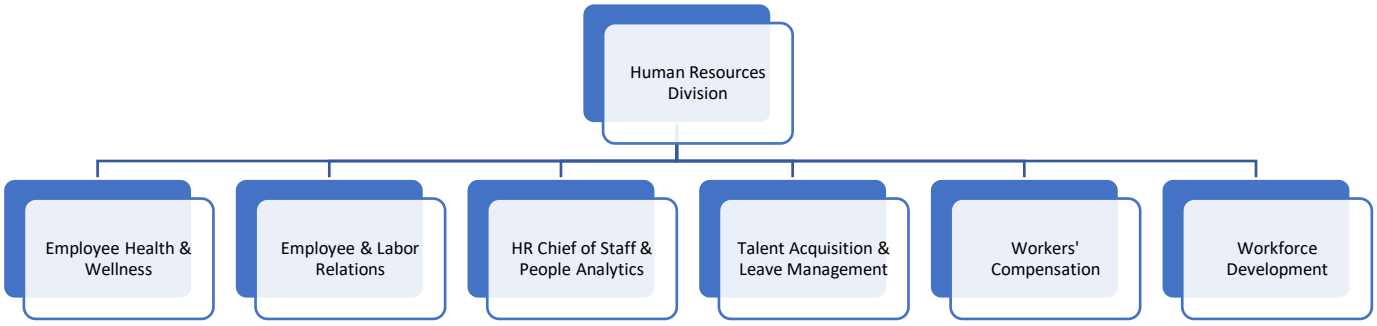
APPENDIX A5: SUSTAINABLE STREETS DIVISION



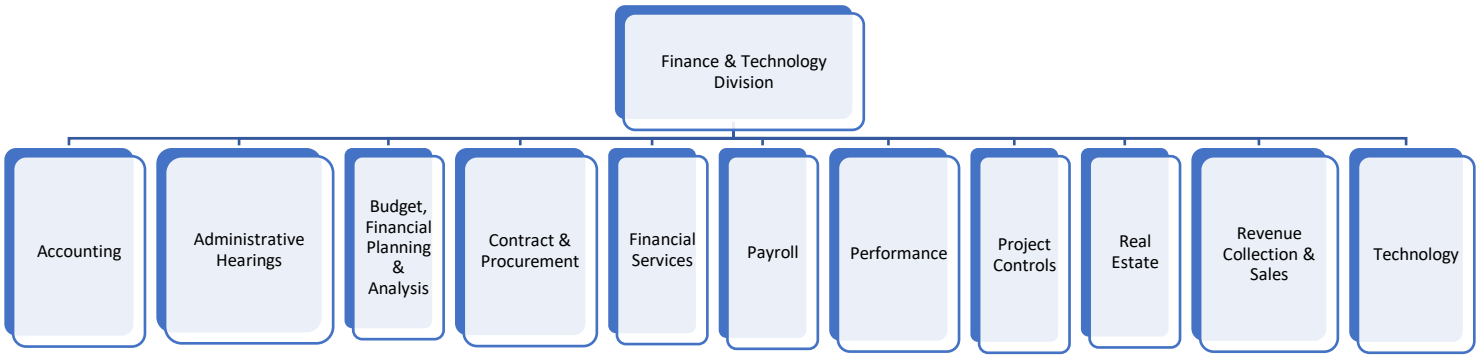
APPENDIX A6: CAPITAL PROGRAMS AND CONSTRUCTION DIVISION



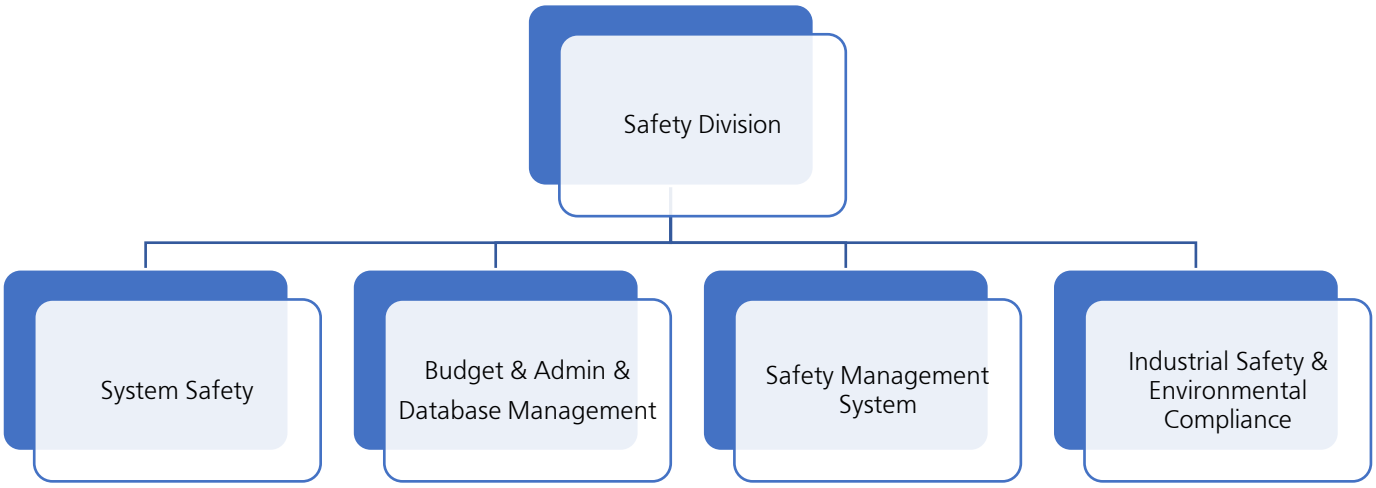
APPENDIX A7: HUMAN RESOURCES DIVISION



APPENDIX A8: FINANCE & TECHNOLOGY DIVISION



APPENDIX A9: SAFETY DIVISION



APPENDIX B: SAFETY PERFORMANCE MEASURES AND TARGETS

SFMTA's safety performance measures are based on the measures established under **the National Public Transportation Safety Plan**. These measures will be evaluated over a fiscal year period with a baseline year being Fiscal Year 2021 (7/1/2020 - 6/30/2021).

RAIL MEASURES AND TARGETS – Light Rail

Performance Measures	**Targets**
Fatalities	0
Fatality Rate Per 100,000 Revenue Miles	0
Reportable Injuries	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate Per 100,000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate Per 100,000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Light Rail (mean distance between major mechanical failures)	≥ 5% Increase in System Reliability based on previous year's NTD reported numbers

RAIL MEASURES AND TARGETS – Historic Streetcar

Performance Measures	Targets
Fatalities	0
Fatality Rate Per 100,000 Revenue Miles	0
Reportable Injuries	≥ 25% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate Per 100,000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate Per 100,000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Historic Streetcar (mean distance between major mechanical failures)	≥ 5% Increase in System Reliability based on previous year's NTD reported numbers

RAIL MEASURES AND TARGETS – Cable Car

Performance Measures	**Targets**
Fatalities	0
Fatality Rate Per 100,000 Revenue Miles	0

Reportable Injuries	≥ 10% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate Per 100,000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate Per 100,000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Cable Car (mean distance between major mechanical failures)	≥ 5% Increase in System Reliability based on previous year's NTD reported numbers

BUS MEASURES AND TARGETS – Motor Coach

Performance Measures	Targets
Fatalities	0
Fatality Rate Per 100,000 Revenue Miles	0
Reportable Injuries	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate Per 100,000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate Per 100,000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Motor Coach (mean distance between major mechanical failures)	≥ 10% Increase in System Reliability based on previous year's NTD reported numbers

BUS MEASURES AND TARGETS – Trolleybus

Performance Measures	Targets
Fatalities	0
Fatality Rate Per 100,000 Revenue Miles	0
Reportable Injuries	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate Per 100,000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥ 5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate Per 100,000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Trolleybus (mean distance between major mechanical failures)	≥ 10% Increase in System Reliability based on previous year's NTD reported numbers

APPENDIX C: RESPONSIBILITIES OF TRANSIT OPERATIONS AND MAINTENANCE

Transit Division – Operations & Maintenance

Per the organization chart as seen in Appendix A-1, the Director of Transit is responsible for ensuring the overall safety for the SFMTA Bus and Rail System.

Director of Transit

- Directs the utilization of resources available to work-units in both bus and rail modes
- Provides direction and support to all transit operations and maintenance functions to ensure attainment of SFMTA's objectives within established policies and parameters
- Coordinates activities within transit operations to assure peak performance and productivity,
- Direct transit operational staff to conform with applicable external regulations.
- Develops and implements strategic transportation plans focusing on transportation needs in cooperation and coordination with SFMTA Divisions and work-units.
- Provides counsel to the Director of Transportation concerning SFMTA transit service
- Implements SMS in the Transit Division
- Assists the Director of Transportation in developing improvement plans for the Transit Division
- Formulates policy recommendations regarding SMS for the Board of Directors, the Director of Transportation, and the Chief Safety Officer.

SFMTA RAIL MODES

Per the organization chart as seen in Appendix A-2, Director of Transit is responsible for ensuring the overall safety for all SFMTA Rail operations. The Transit Division's rail units (Transit Operations, Rail Maintenance, Maintenance of Way, Program Delivery & Support, and Cable Car) are responsible for implementing the requirements as outlined in this PTASP including training requirements of all Rail Maintenance Supervisors and other Rail Maintenance employees, Rail MOW employees, Rail Facilities, Rail Transit Supervisors, Transportation Controllers, Train Operators, Contractors, and emergency

response personnel as required to ensure compliance with Standard Operating Procedures.

Chief Transportation Officer oversees all the rail transit operations, except Cable Car, including Transit Services, Transportation Management Center, Rail Operations Training, and is responsible for the following activities:

- Develop operating rules and procedures
- Implement changes in rules and procedures by issuing bulletins and notices to train operators
- Develop and maintain rail system emergency preparedness and response for rail facilities in coordination with the Emergency Preparedness Manager
- Maintain training certification and re-certification requirements
- Comply with SFMTA Change Management Procedures

Rail Operating Divisions

The division managers of each Rail operating division have the following responsibilities:

- Manage day-to-day operations at the Division, monitor train operators' in-service operation; communicate safety messages to train operators; investigate safety concerns and occupational injuries; take corrective actions to prevent or mitigate recurrences including discipline and counseling; inspect facilities; and maintain safety records at the division
- Ensure train operators have the required licenses and up-to-date DMV medical certificates; operators receive training, and re-training
- Take appropriate action(s) to resolve reported or otherwise identified potential hazards and close-call incidents as required under the Hazard Management Program
- Interact with the Rail Training team

Rail Transportation Management Center (TMC)

The Rail TMC monitors and controls SFMTA rail operations for all rail lines. Operations include train control, traction power, fire-life safety systems, communications, issuance of train orders, operating permits and clearances for mainline maintenance work. This facility also has emergency operations functions that include monitoring of warnings and alarms through the Supervisory Control and Data acquisition (SCADA) system, and control ventilation systems that evacuate smoke from tunnels. The TMC is staffed twenty-four hours per day, seven days per week.

The senior operations manager of TMC is responsible for overall supervision of the TMC staff, who are responsible for monitoring and authorizing train movement. The senior operations manager of TMC is responsible for the following activities:

- Oversees the activities of transit operations specialists (floor managers) train controllers, train controller instructors and other TMC staff.
- Ensure train controllers have the required training and re-training
- Implements changes in procedures by issuing bulletins and notices to the train controllers
- Develops and maintains rail system emergency SOPs for the TMCCoordinate development and implementation of the TMC emergency response plan with the Emergency Preparedness Manager

Rail Operator Training

The manager of Rail Operator Training is responsible for all operator training for new operators (to the rail mode), new rail project start-ups, new rail vehicles, and recertification. Duties include:

- Oversees operator certification and re-certification requirements
- Oversees training lesson plan development and implementation
- Takes corrective actions as necessary to prevent or mitigate recurrences of incidents, accident or occupational injuries
- Supports investigations of incidents and accidents as necessary
- Implements training in response to video-investigation findings
- Implements compliance checks

Rail Maintenance

The Deputy Director of Rail Maintenance responsibilities include fleet preventive maintenance, heavy duty repair, fleet overhauls, body shop, fleet engineering, fleet electronics, and rescue repair through the Mobile Response Unit. Rail Maintenance is responsible for all aspects of maintenance for:

1. Breda LRVs (LRV2/3)
2. Siemens LRVs (LRV4)
3. Historic Streetcars

Rail Maintenance functions include:

- Conduct prescribed inspections of the rail vehicles in the manner specified by the Rail Fleet Services Maintenance Plan
- Conduct non-scheduled maintenance and inspections

- Perform failure analyses, as necessary, to determine the cause(s) of failures and recommend corrective action
- Develop and update maintenance rules and procedures as necessary
- Inspect trains involved in safety events for compliance with all maintenance and operational specifications related to safe operation, e.g., horn functionality, brakes, etc. Place a "hold" on equipment if there is evidence of a system being in a condition outside of its normal and safe-operating capability; ensure Rail Equipment personnel have been trained and have the required licenses and/or certification
- Train personnel in injury and illness prevention, emergency procedures, and safe vehicle operation; communicate safety messages to personnel; investigate occupational injuries; take corrective actions to prevent or mitigate recurrences including discipline and counseling; investigate reports of unsafe conditions; inspect facilities; and maintain safety records at the facility
- Perform and document random checks of completed maintenance activities at the various mileage intervals

Maintenance of Way

- The Deputy Director of Maintenance of Way oversees the activities of Track Maintenance, Traction Power, Signal Maintenance, and the Digital Shop

- All maintenance is performed in accordance with the Maintenance of Way SOPs. Manufacturers recommendations, FRA Regulations, CPUC General Orders, Industry Standards, and operational experience were used in guidelines in developing the maintenance SOPs.

Track Maintenance

- Track Maintenance responsibilities include:

  - Maintain the guideway that consists of ballasted track, embedded track, and direct fixation track
  - Maintain crossovers, turnouts and track on the mainline and in yard storage areas
  - Utilize the Track Maintenance SOP to ensure inspections and maintenance activities are followed and performed timely
  - Document and maintain accurate records of inspections, maintenance work, safety event related activities, and emergency responses; make records available to the CPUC, FTA, and Safety Division for review and audit.

Traction Power Maintenance responsibilities include:*Inspect and maintain traction power substations, overhead lines systems, auxiliary power equipment, ventilation system, uninterruptible power supply, and other associated equipment*

- Utilize the appropriate SOP to ensure inspections and maintenance activities are followed and performed timely
- Document and maintain accurate records of inspections, maintenance work, accident related activities, and emergency responses; make records available to the CPUC, FTA, and Safety Division for review and audit.

Signal Maintenance

Cable Car Operations and Maintenance

- The Senior Operations Manager of the Cable Car Division is responsible for day-to-day operational and maintenance decisions, including Cable Car transit operations, Cable Car track and machinery maintenance, and Cable Car vehicle maintenance and restoration.

- Cable Car Operations runs the Cable Car fleet on three cable car lines. Operations ensures that each Cable Car in service has both a motorman (also knowns as a grip-man) and a conductor. The motorman operates the grip mechanism which connects the cable car to the cable, which runs under the street and propels the cable car. The conductor is primarily responsible for collecting fares from the passengers and operating the cable car's rear brake.

- Cable Car Machinery maintains the system of electric motors, which move the under-street cables, and the cables themselves as well as all the related appurtenances in accordance with the Cable Car System Machinery Engineer's Logbook SOP. Other related SOPs, used by Cable Car Machinery in safe maintenance of the system are Cable Car Machinery Lockout/Tagout, Cable Car Systems Splicer's Logbook, and Cable Car Slicing and Maintenance

- Cable Car Track Maintenance maintains the cable car tracks, switches, and crossovers in accordance with Cable Car Roadway Track Inspection and Maintenance SOP. While SFMTA's cable car track is narrow gauge (39 inches), Cable Car Track Maintenance follows the maintenance requirements of CPUC General Order 143 series and of FRA's 49 CFR 213.

- Line supervision is provided by Metro Rail Operations

Program Delivery and Support

The Manager of Program Delivery and Support oversees the following five work units: Transit Capital Planning, Fleet Engineering, Quality Assurance and Commissioning, Maintenance Training, and Technology Integration. In addition, the Program Delivery and Support manages:

- Individual rail vehicle procurement projects, such as, the Siemens LRV4 Project;Vehicle procurement project staff with responsibility for all aspects of the vehicle procurement, including, design, safety/security certification, user and system-integration testing, and final vehicle commissioning. Compliance with requirements of the FTA procurement and safety/security certification.

- Project documents including Safety/Security Management Plans (SSMP) and Safety/Security Certification Plans.

- Capital Planning assessments of the state of good repair of each rail vehicle fleet, plans for fleet overhauls, vehicle retirements, and vehicle replacement projects.

Fleet Engineering

Fleet Engineering is responsible for

- Handling design planning and modification for both rail and bus fleets. Fleet Engineers work on major procurement projects, such as the Siemens LRV4 Project and ensure the new vehicle designs meet SFMTA, CPUC, FTA and industry standard.

- Designing and implementing any post-procurement design.

- Assisting both Rail Vehicle Maintenance and Bus Maintenance with troubleshooting, brake efficiency testing, and design hazard analysis.

Quality Assurance and Commissioning Unit

Quality Assurance and Commissioning Unit duties include:

- Ensuring the quality of maintenance activities through verifying the quality of various preventive maintenance activities.

- Participating in the user acceptance and systems integration testing of both new rail and bus vehicles and verifies that new vehicles have completed commissioning and are ready for revenue service.

The Maintenance Training Unit

- Prepares both rail and bus mechanics for their job duties.

Provides mechanics with necessary training in operating of SFMTA road maintenance vehicles and preparation for commercial driver's licenses.

SFMTA

APPENDIX D: SAFETY RISK REGISTER

The Safety Risk Register is an information management tool used to document the agency's Safety Risk Management and Safety Assurance activities. Below is an example:

Identification

Hazard	Hazard Type	Identification Date	Identification Source	Analysis Date	Worst Possible, Worst Credible, or Most Common Potential Consequences(s)	Existing Mitigation(s)
Broken Rail	Technical-Maintenance	7/1/19	Inspection Report	7/1/19	Bus derailing resulting in worker or rider fatality	

Initial Safety Risk Rating

Hazard	Severity of Consequences	Likelihood of Consequences	Safety Risk Index	Safety Risk Priority
Broken Rail	1 (Catastrophic)	A (Frequent)	1A (High)	1 – Unacceptable – action required, safety risk must be immediately mitigated or eliminated

Further Mitigation Action

Hazard	Further Mitigation Action
Broken Rail	1. Stop all trains from going over the track; replace broken rail with new rail immediately

Revised Safety Risk Index

Hazard	Revised Safety Risk Index/Priority	Revised Safety Risk Index Date
Broken Rail	3C (Low) – 3 – (Acceptable with review; Safety risk is acceptable pending management review)	7/1/19

Mitigation Owner and Implementation Date			
Hazard	Department Responsible for Mitigation	Estimated Implementation Date	Contact Person
Broken Rail	Track Maintenance	7/1/19	Superintendent Track Maintenance

APPENDIX E: SAFETY EVENT INVESTIGATION PROCEDURES

Part 1– RAIL SAFETY EVENT INVESTIGATION PROCEDURES

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

SAFETY DIVISION
SAFETY EVENT INVESTIGATION/REPORTING PROCEDURES RAIL

SOP-SA 2.1.2

Supersedes:	SY.PR.001	Effective Date:	6/16/2020
Author: Kenneth Anderson	....	Date:	....
Approved by Melvyn Henry Chief Safety Officer	....	Date:	....

PURPOSE AND SCOPE

This SOP establishes procedures for the investigation and documentation of all Safety Events involving SFMTA rail vehicle. This document complies with the requirements of Title 49, Code of Federal Regulations Part 674, California Public Utilities Commission (CPUC) General Order 164, and CPUC's Program Standard – Procedure Manual State Safety and Security Oversight of Rail Fixed Guide Systems).

In the case of incidents meeting the reporting requirements of GO 164, the SFMTA conducts its investigation on behalf of the CPUC. Only when the CPUC staff "adopts" a report written under the requirements of this SOP shall System Safety close its investigation of an incident.

System Safety also investigates safety events including collisions, derailments, fires, evacuations, and other safety occurrences otherwise not classified (OSONOCS) in order to identify those which meet the reporting criteria of the National Transit Database (NTD).RESPONSIBILITY

SAFETY DIVISION

The Safety Division is comprised of System Safety and the Industrial Safety and Environmental Compliance (ISEC), and System Safety Administration (SSA) Units and managed by the Chief Safety Officer, System Safety Manager, and System Safety Administration Manager. This SOP applies to the investigations conducted by Transportation Safety Specialists (TSSs) of the System Safety Unit.

CHIEF SAFETY OFFICER

Serves as the sole responsible authority for the agency's safety environment, SMS Executive, and reports directly to a Director of Transportation.

SYSTEM SAFETY MANAGER

The System Safety Manager, who serves as the deputy chief safety officer, directly supervises Transportation Safety Specialists providing guidance to the safety-event investigation and preparation of major reports.

SYSTEM SAFETY ADMINISTRATION MANAGER
The System Safety Administration Manager directly supervises the System Safety Administration unit, which is responsible for maintaining safety-event records and data entry, and random surveillance video review.

TRANSPORTATION SAFETY SPECIALIST (TSS)

The Transportation Safety Specialists are the principal incident investigators for SFMTA's major and reportable incidents.

DEFINITIONS

Safety Event: Any collision, derailment, or explosion involving a SFMTA rail vehicle or any other loss-causing event involving the operation of such railroad equipment that results in a fatality or injury to a passenger or employee, or the emergency evacuation of persons (Ref. NTSB 49CFR540, modified

Safety Event Classification: The type of safety event is identified as the first reportable event in the safety event sequence.

Classification protocol: If a train derails and then collides with the structure or another train, the safety event is classified as a derailment. On the other hand, if a train collides with another object (rail car, trash container, etc.) and then derails, the safety event is classified as a collision. In other words, the safety event will be classified according to the first event that occurred.

Derailments: A wheel, whose flange is on top of the head of a rail/switch point is derailed. Likewise, a wheel that is suspended above a rail, whether the act of lowering the wheel directly to the rail's head will result in the wheel being re-railed, is derailed. The rationale for this reasoning is the following: there must be something out of order with the car equipment and/or track for the situation to have occurred. The situation must be investigated to isolate the problem and correct it before a more serious incident occurs.

First Knowledge: An official notification from the employee, police, paramedics, hospital, or employee's family of the seriousness of an injury.

Fatality: Anyone involved in an incident, as defined by this SOP, who dies within 30 days of incident-related injuries shall be considered a "fatality." If an incident is evaluated to be suicide/attempted suicide, the TSS shall note that on the final report. Any such classification of fatality as suicide/attempted suicide will be made in conjunction with the Medical Examiner and Police Department (SFPD - only classify homicide).

Collision: A safety event involving undesired/unplanned contact between an SFMTA vehicle and another vehicle, person, object, or animal.

Derailment: An incident wherein one or more wheels of a truck/axle of any rail vehicle lose their normal relationship(s) with the head of the running rail.

Grade Crossing: A place where a railroad and road/highway, or two railroad lines, cross at the same level.

High-Visibility safety event: A safety event, regardless of type and/or severity that generates widespread publicity and may warrant a formal investigation.

Injury safety event (not serious): a safety event that causes any person involved in the safety event to require either medical treatment at the scene of the safety event or to be transported to a medical facility for treatment.

Injury safety event (serious): All safety event s in which (1) a pedestrian, customer on a rail vehicle, or occupant(s) of another vehicle sustains serious or potentially life-threatening injuries, as determined by on-site Emergency Medical Services (EMS) personnel, and (2) is subsequently transported and admitted to a medical facility.

Intersection: A place where two roads or highway's meet. The space which is bounded by the far limit lines of each road.

NTD – National Transit Database.

Reportable safety event: A safety event which meets the reporting requirements of General Order 164 or those of the National Transit Database

SFFD: - San Francisco Fire Department.

SFPD: – San Francisco Police Department.

PROCEDURES

NOTIFICATION OF SYSTEM SAFETY

Whenever a safety event involving a rail transit vehicle, other rail vehicle, or agency rail property occurs, Operators and other employees shall immediately notify the Transportation Management Center. (TMC). The TMC controller or other TMC personnel shall contact the On-Call TSS via the safety phone immediately at 1 415 509 0366. If the On-Call TSS is unavailable, the controller shall attempt to contact the System Safety Manager and then the Chief Safety Officer.

Transportation Safety Specialist shall assess the circumstances for reportability to the appropriate oversight agency and initiate notification. If the incident meets the reporting criteria of the CPUC GO 164, the TSS shall contact the CPUC representative for the SFMTA as soon as possible and within 2 hours of the safety–event's occurrence, if possible. At the earliest convenience the TSS shall complete the CPUC Online Rail Transit Accident Form :

When completing the CPUC Online Rail Transit Accident Form, the TSS must enter CPUCIncidentNotifications@sfmta.com in the "Your Address" field. This allows CPUC to notify the appropriate SFMTA officials of the safety event circumstances.

Once the CPUC has been notified via the On-Line Rail Transit Accident Form or by phone, CPUC website will automatically generate notification to FTA's Transportation Operations Center (TOC), if the safety event meets FTA's two-hour reporting criteria.

The on-call TSS, whom TMC contacts, shall assume responsibility for the investigation and reporting for CPUC. If the On-Call TSS is not on duty, he/she may delegate the investigation to a TSS who is on duty. That TSS shall immediately assume responsibility for contacting CPUC and for the entire investigation.

If a rail incident meets the definition of "High Visibility," the investigating TSS shall notify CPUC by telephone as a courtesy in addition to completing the On-Line Rail Accident Form

NTSB notification for Rail Accidents – When a rail accident results in a fatality, the TSS shall notify the National Transportation Safety Board (NTSB) via the National Response Center (NRC) at 800 424-8802.

Clearing of a scene depends on the type and seriousness of the Safety Event. For example:

1. If fatality, the Medical Examiner will clear the scene
2. If a serious injury or crime, law enforcement having jurisdiction, usually SFPD, will clear the scene.
3. If a fire on the surface right-of-way or subway station, SFFD will clear the scene.
4. If minor Safety Event, such as a non-injury hit-and-run collision with no police response, the SFMTA Incident Commander will clear the scene

From time to time, for minor rail Safety Events, the SFMTA Incident Commander should be able to clear the scene before the arrival of Safety personnel provided that the SFMTA Incident Commander takes photographs and marks the vehicle locations with chalk or crayon allowing Safety personnel to complete their required investigation at a later time.

INVESTIGATION PROCESS

REPORTING TO THE SCENE

The TSS should report to any major safety-event such as:

1. Fatality;
2. Person under a rail vehicle;
3. Multiple serious injuries involving transport to the hospital;
4. Catastrophic damage to an SFMTA vehicle;
5. Collision involving multiple non-SFMTA vehicles and major damage or injuries.

DOES NOT REQUIRE REPORTING TO THE SCENE

The on-call TSS may elect not to report to incidents, such as minor grade crossing collisions, which are reportable under GO 164, but do not involve any of the criteria necessary for reporting to the scene. The TSS should notify TMC and give TMC and Transit staff on scene authority to clear the scene.

WHEN REPORTING TO THE SCENE

When reporting to a safety-event scene, the TSS should collect the following information:

1. Names, addresses, and phone numbers of witnesses;
2. The number of injuries including fatalities (Injuries are defined as those requiring immediate transport to a medical facility.);
3. Names, age, sex, addresses, and phone numbers, if possible, of injured parties, including fatalities;
4. Driver's license and insurance information from drivers of other involved vehicles;
5. License plate numbers from other involved vehicles and their description;
6. Names and agencies of emergency personnel on scene;
7. Witness statements;
8. Statement of operator(s), if possible;
9. If the operator is available for interview, ask questions about the operator's level of fatigue, sleeping patterns, use of prescription and non-prescription medication, and use of alcohol;
10. Photograph the safety event scene and involved vehicles, in accordance with the attached checklist (See Appendix, B);
11. Develop a safety event scene sketch, which identifies by measurement the location of important items, including but not limited to vehicles, road marks, rail marks, debris, and victims;
12. Contact TMC to request on-board video surveillance retrieval;
13. Verify that video surveillance retrieval has occurred;
14. Arrange for appropriate storage of any evidence obtained at the scene;
15. Notify Rail Operator to secure the vehicle pending inspection by police and System Safety personnel.

OFF-SCENE INVESTIGATION

When collecting information off scene and throughout the investigation, the TSS should collect and review the following:

- Obtain copies of SFPD, SFFD, and/or Medical Examiner report(s);
- Obtain copies of Operator and Inspector's safety event reports;
- Obtain Vehicle Condition Reports from Rail Vehicle;
- Obtain Vehicle Repair Estimates;
- Determine if FTA post-accident substance testing was completed;
- During the post-safety-event interview, enquire about the Operator's

- use of drugs, including illegal, prescription, and over the counter, and/or alcohol;
- Based upon the operator's responses to interview questions and his/her appearance, determine whether the operator may have been impaired by fatigue, illness, mediation, or alcohol;
- Obtain information on condition of injured person(s), if possible;
- Review of applicable rules, procedures, and training material to determine if the Operator's performance was within established rules and practices;
- Review field sketches, diagrams, and safety event -scene photos, with specific attention to road marks, skids, marks on rails, evidence of derailment location, evidence of emergency brake application;
- Check track gauge in case of derailment;
- Consult with other TSS's and the System Safety Manager concerning skid-speed analysis for rubber-tire vehicles;
- Consult with Fleet Engineering concerning emergency-brake application and stopping distances;
- Obtain reports of brake-efficiency testing from Rail Vehicle Maintenance;
- Using safety database software, review safety event s previously occurring at the same location and determine what corrective actions SFMTA may have implemented. If the safety event occurred in a subway or surface station, review that fixed location's safety event history;
- Determine the most probable and contributory causes, including, but not limited to, fatigue, work schedule, hours of service, drug/alcohol use, mechanical failure, rule or regulatory violation, and procedural violation;
- **MAJOR AND MINOR REPORTING**
- The investigative report is required pursuant to the California Public Utilities Commission General Order 164. The investigation/reporting is done on behalf of the CPUC and in conjunction with CPUC staff and should be thorough and accurate. CPUC staff may develop their own report if they disagree with the SFMTA report. System Safety will review such reports and assist in implementing recommended corrective actions. If System Safety disagrees with the CPUC investigation reports, the System Safety Manager will submit SFMTA's written dissent to CPUC staff.

- The investigating TSS shall notify CPUC staff when additional investigation is conducted by an investigation team or panel performing interviews, questioning witnesses, or tests, etc. as part of the investigation beyond the initial scene investigation
- The investigating TSS shall provide for CPUC's staff participation to the full extent in any investigation and make all information related to the investigation, including data from event recorders, available to CPUC staff.
- In each written report, whether for a minor or major event, the TSS shall document his/her findings, most probable cause, contributing causes, and recommendation for corrective action to prevent a recurrence of the safety event.
- **System Safety will share draft report and proposed corrective actions with CPUC staff before finalizing any investigation report**
- Part 674.35 The investigating TSS must coordinate his/her safety-event reporting activities with CPUC staff. In the event CPUC staff disagrees with SFMTA conclusions, the System Safety Manager, in consultation with CPUC staff and the investigating TSS, reviews the report's findings, conclusions, and recommendations, and when appropriate will instruct the investigation TSS to modify the draft report.
- Safety-Event Review Panel: when appropriate the Chief Safety Officer or System Safety Officer may convene a Safety-Event-review panel consisting of Subject Matter Experts from different divisions and work-units of SFMTA.
- Outside Consultants and Specialists: The Chief Safety Officer may retain the services of outside consultants and specialists who are experts in the area of safety-event investigation and reconstruction to assist in finalizing investigation reports, conclusions, and recommendations.
- SFMTA that shares track or with shared rights-of-way with the general railroad system and is subject to the FRA accident notification requirements, shall, within two hours, notify Staff of any safety event requiring notification to the FRA. (Freight crossings on Third Street)
- SFMTA shall submit written event reports on forms prescribed by Staff. SFMTA shall submit such written reports within 30 calendar days after the last day of the month in which the safety event occurred. SFMTA shall file written reports for all immediately reportable safety-events and develop sufficient records for Safety Management System (SMS) analysis.
- SFMTA shall file a monthly safety-event corrective action summary

- report. Each SFMTA shall file this report in a format acceptable to CPUC staff within 30 calendar days from the last day of the month covered. SFMTA shall file the monthly summary report whether any reportable safety event occurred during the month.

MAJOR REPORT CONTENTS

The report must contain at a minimum the following information:

- Transit Safe (or Intelex), CPUC, and NTD Report Numbers on the cover sheet, if applicable;
- Description of the Safety-Event
- Safety-Event Scene Sketch;
- Safety-Event Scene Photographs and Vehicle Photographs;
- Number and severity of injuries/fatalities;
- Estimates of Property Damage;
- Relevant Investigation Steps taken by Safety;
- Results and Findings of Safety's Investigation;
- Identification of Most Probable Cause;
- Identification of Contributory Causes;
- Recommendations for corrective action, if any, to prevent re-occurrence;
- Statement of Confidentiality and Attorney-Client Privilege.

CPUC MINOR EVENT REPORT

SFMTA staff developing and compiling Safety-Event investigation reports may use the CPUC Minor Event Report Form for minor reportable safety events, in accordance with RTSS 8, that do not meet the following criteria (FTA Two-Hour Accident Notification Guide);

- Fatality;
- Serious Injury as defined by FTA (49 CFR 673);
- Collisions involving Substantial Damage (49 CFR 673)
- Reports for safety events, which including collisions, derailments, and evacuations, which don't meet the above criteria, may use the CPUC Minor Event Report Form. Unacceptable hazards and signal violations may also be reported on this form (Note: The Safety Division is working with CPUC staff to develop a spread-sheet monthly report for all UHCs and signal violations. If that happens, we will no longer use the minor-event report form.

SFMTA

DRAFT REPORTS

Within thirty (30) calendar days, the investigating TSS will forward a draft of the final report along with the complete hard-copy file to the System Safety Manager. The System Safety Manager will review and make any appropriate changes, within five calendar days, and return the draft, with comments, to the TSS for revision. As soon as the draft has been revised to the satisfaction of the System Safety Manager and before 60-days has expired, the System Safety Manager will submit this to the CPUC. As soon as a TSS has completed a draft report and System Safety management has reviewed and edited the report, the System Safety Manager will email a copy of that report to CPUC staff. The System Safety Manager will save a copy of that email in the electronic accident file (*KnowledgeLake*) and enter the date of draft submission to the CPUC as evidence of compliance with General Order 164.

NATIONAL TRANSIT DATABASE

As soon as possible and no later than 30 days after a reportable safety event, the System Safety Manager or designee will make an entry into NTD for a safety event meeting the NTD reporting criteria (NTD Safety & Security Reporting Manual). The System Safety Manager or designee will save a PDF copy of the NTD S&S 40 report and provide that PDF to the TSS for the safety-event investigation file and enter the NTD number into the CPUC Safety-Event Tracking spreadsheet. The TSS will include the NTD report in the investigation file and the NTD number on the title of the major minor-event report.

LIST OF APPENDICES & REFERENCES

References

General Order 164

Title 49 CFR 673 (PTASP and SMS)

Title 49 CFR 674(State Safety Oversight)

FTA Two-Hour Accident Notification Guide

NTD Safety and Security Reporting Manual

CPUC Safety-Event Tracking Spreadsheet

APPENDIX E, Part 2: SAFETY-EVENT INVESTIGATION PROCEDURES - BUS

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

SAFETY DIVISION
SAFETY EVENT INVESTIGATION/REPORTING PROCEDURES BUS

SOP-SA 2.1.1

Supersedes:	SY.PR.001	Effective Date:	6/16/2020
Author: Kenneth Anderson	....	Date:	....
Approved by Melvyn Henry Chief Safety Officer	....	Date:	....

PURPOSE AND SCOPE

This SOP establishes procedures for the investigation and documentation of all safety event involving SFMTA bus. This document complies with the requirements of Title 49, Code of Federal Regulations Section 673 and National Transit Database reporting criteria, which require Safety to investigate bus safety-events including collisions, fires, evacuations, and other safety occurrences otherwise not classified (OSONOCS)

RESPONSIBILITY

SAFETY DIVISION

The Safety Division is comprised of System Safety and the Industrial Safety and Environmental Compliance (ISEC), and System Safety Administration (SSA) Units and managed by the Chief Safety Officer, System Safety Manager, ISEC Safety Officer, and System Safety Administration Manager. This SOP applies to the investigations conducted by Transportation Safety Specialists (TSSs) of the System Safety Unit.

CHIEF SAFETY OFFICER

Serves as the sole responsible authority for the agency's safety environment, SMS Executive, and reports directly to a Director of Transportation.

SYSTEM SAFETY MANAGER

The System Safety Manager, who serves as the deputy chief safety officer, directly supervises Transportation Safety Specialists providing guidance to the accident/incident investigation and preparation of major reports.

SYSTEM SAFETY ADMINISTRATION MANAGER

The System Safety Administration Manager directly supervises the System Safety Administration unit, which is responsible for maintaining accident records and data entry, and random surveillance video review.

ISEC Safety Officer

The ISEC Safety Officer directly supervises the ISEC unit and provides guidance to the Safety Division when investigations involve work-place injuries or environmental damage.

TRANSPORTATION SAFETY SPECIALIST (TSS)

The Transportation Safety Specialists are the principal incident investigators for SFMTA's major and reportable incidents.

DEFINITIONS

Reportable Safety-event: Any collision, derailment, or explosion involving a SFMTA bus or any other loss-causing event that results in a fatality or injury to a passenger or employee, or the emergency evacuation of persons (Ref. NTSB 49CFR540, modified)

Safety-Event Classification: The type of safety event is identified as the first reportable event in sequence.

Classification protocol: If a bus collides with another vehicle and then catches on fire, for example, the safety-event is classified as a collision. On the other hand, if a bus catches

on fire then collides with another object, the safety-event is classified as a fire. In other words, the safety event will be classified according to the first event that occurred.

First Knowledge: An official notification from the employee, police, paramedics, hospital, or employee's family of the seriousness of an injury.

Fatality: Anyone involved in a safety event, as defined by this SOP, who dies within 30 days of incident-related injuries shall be considered a "fatality." If an incident is evaluated to be suicide/attempted suicide, the TSS shall note that on the final report. Any such classification of fatality as suicide/attempted suicide will be made in conjunction with the Medical Examiner and Police Department (SFPD - only classify homicide).

Collision: A safety event involving undesired/unplanned contact between an SFMTA vehicle and another vehicle, person, object, or animal.

Grade Crossing: A place where a railroad and road/highway, or two railroad lines, cross at the same level.

High-Visibility Safety Event: A safety event, regardless of type and/or severity that generates widespread publicity and may warrant a formal investigation.

Injury Safety Event (not serious): A safety event that causes any person involved in the safety event to require either medical treatment at the scene of the accident or to be transported to a medical facility for treatment.

Injury Safety Event (serious): All safety-events in which (1) a pedestrian, customer on a rail vehicle, or occupant(s) of another vehicle sustains serious or potentially life-threatening injuries, as determined by on-site Emergency Medical Services (EMS) personnel, and (2) is subsequently transported and admitted to a medical facility.

Intersection: A place where two roads or highway's meet. The space which is bounded by the far limit lines of each road.

NTD – National Transit Database.

NTD Reportable Accident: A safety event which meets the reporting requirements of the National Transit Database Reporting Manual

SFFD: - San Francisco Fire Department.

SFPD: – San Francisco Police Department.

PROCEDURES

NOTIFICATION OF SYSTEM SAFETY

Whenever a safety event involving a SFMTA motor coach or trolleybus vehicle, Operators and other employees shall immediately notify the Transportation Management Center. (TMC). The TMC controller or other TMC personnel shall contact the On-Call TSS via the safety phone immediately at 1 415 509 0366. If the On-Call

TSS is unavailable, the controller shall attempt to contact the System Safety Manager and then the Chief Safety Officer.

The on-call TSS, whom TMC contacts, shall assume responsibility for the investigation. If the On-Call TSS is not on duty, he/she may delegate the investigation to a TSS who is on duty.

INVESTIGATION PROCESS

REQUIRED REPORTING TO THE SCENE

The TSS shall report mandatorily to any major safety event such as:

1. Fatality;
2. Person under a bus;
3. Multiple serious injuries involving transport to the hospital;
4. Catastrophic damage to an SFMTA vehicle;
5. Collision involving multiple non-SFMTA vehicles and major damage or injuries.

DOES NOT REQUIRE REPORTING TO THE SCENE

The on-call TSS may elect not to report to a safety event, which may be NTD reportable but do not involve any of the criteria necessary for reporting to the scene. Clearing of a scene depends on the type and seriousness of the Safety Event. For example:

6. If fatality, the Medical Examiner will clear the scene
7. If a serious injury or crime, law enforcement having jurisdiction, usually SFPD, will clear the scene.
8. If a fire on the surface right-of-way or subway station, SFFD will clear the scene.
9. If minor Safety Event, such as a non-injury hit-and-run collision with no police response, the SFMTA Incident Commander will clear the scene

From time to time, for minor bus Safety Events, the SFMTA Incident Commander should be able to clear the scene before the arrival of Safety personnel provided that the SFMTA Incident Commander takes photographs and marks the vehicle locations with chalk or crayon allowing Safety personnel to complete their required investigation at a later time.

WHEN REPORTING TO THE SCENE

When reporting to a major, high-visible accident scene, the TSS should collect the following information:

a. Names, addresses, and phone numbers of witnesses;
b. The number of injuries including fatalities (Injuries are defined as those requiring immediate transport to a medical facility.);
c. Names, age, sex, addresses, and phone numbers, if possible, of injured parties, including fatalities;
d. Driver's license and insurance information from drivers of other involved vehicles;
e. License plate numbers from other involved vehicles and their description;
f. Names and agencies of emergency personnel on scene;
g. Witness statements;
h. Statement of operator(s), if possible;
i. If the operator is available for interview, ask questions about the operator's level of fatigue, sleeping patterns, use of prescription and nonprescription medication, and use of alcohol;
j. Photograph the safety event scene and involved vehicles, in accordance with the attached checklist (See Appendix, B);
k. Develop a safety-event scene sketch, which identifies by measurement the location of important items, including but not limited to vehicles, road marks, rail marks, debris, and victims;
l. Contact TMC to request on-board video surveillance retrieval;
m. Verify that video surveillance retrieval has occurred;
n. Arrange for appropriate storage of any evidence obtained at the scene;
o. Notify Bus Vehicle Maintenance to secure the vehicle pending inspection by police and System Safety personnel.

OFF-SCENE INVESTIGATION

When collecting information off scene and throughout the investigation, the TSS shall collect and review the following:

- Obtain copies of SFPD, SFFD, and/or Medical Examiner report(s);
- Obtain copies of Operator and Inspector's accident reports;
- Obtain Vehicle Condition Reports from Rail Vehicle;
- Obtain Vehicle Repair Estimates;
- Determine if FTA post-accident substance testing was completed;
- During the post-safety event interview, enquire about the Operator's use of drugs, including illegal, prescription, over the counter, and/or alcohol;

-
- Based upon the operator's responses to interview questions and his/her appearance, determine whether the operator may have been impaired by fatigue, illness, mediation, or alcohol;
- Obtain information on condition of injured person(s), if possible;
- Review of applicable rules, procedures, and training material to determine if the Operator's performance was within established rules and practices;
- Review field sketches, diagrams, and safety-event scene photos, with specific attention to road marks, skids, marks on rails, evidence of derailment location, evidence of emergency brake application;
- Check track gauge in case of derailment;
- Consult with other TSS's and the System Safety Manager concerning skid-speed analysis for rubber-tire vehicles;
- Consult with Fleet Engineering concerning emergency-brake application and stopping distances;
- Obtain reports of brake-efficiency testing from Bus Maintenance;
- Using safety database software, review accidents previously occurring at the same location and determine what corrective actions SFMTA may have implemented.
- Determine the most probable and contributory causes, including, but not limited to, fatigue, work schedule, hours of service, drug/alcohol use, mechanical failure, rule or regulatory violation, and procedural violation;

MAJOR REPORT CONTENTS

System Safety shall develop a comprehensive report for the Chief Safety Officer, Director of Transportation and the Director of Transit:

- Transit Safe (or Intelex and NTD Report Numbers on the cover sheet
- Description of the Incident;
- Safety event Scene Sketch;
- Safety event Scene Photographs and Vehicle Photographs;
- Number and severity of injuries/fatalities;
- Estimates of Property Damage;
- Relevant Investigation Steps taken by System Safety;
- Results and Findings of System Safety's Investigation;

- Identification of Most Probable Cause;
- Identification of Contributory Causes;
- Recommendations, if any, to prevent re-occurrence;
- Statement of Confidentiality and Attorney-Client Privilege.

DRAFT REPORTS

Within thirty (30) calendar days, the investigating TSS will forward a draft of the final report along with the complete hard-copy file to the System Safety Manager. The System Safety Manager will review and make any appropriate changes, within five calendar days, and return the draft, with comments, to the TSS for revision. As soon as the revisions are made, the TSS will submit the revised report to the System Safety Manager. Once the System Safety Manager is satisfied with the report, he/she will submit it to the Chief Safety Officer, who will, in turn, submit the report to the Director of Transportation and the Director of Transit.

NATIONAL TRANSIT DATABASE

As soon as possible and no later than 30 days after a reportable safety event, the System Safety Manager or designee will make an entry into NTD for a safety event meeting the NTD reporting criteria (NTD Safety & Security Reporting Manual). The System Safety Manager or designee will save a PDF copy of the NTD S&S 40 report and provide that PDF to the TSS for safety event investigation file. The TSS will include the NTD report in the investigation file and the NTD number on the title of the major minor-event report.

LIST OF APPENDICES & REFERENCES

References

Title 49 CFR 673 (PTASP and SMS)

NTD Safety and Security Reporting Manual

APPENDIX F: TRANSIT DIVISION TRAINING PROGRAMS

The following Training Program Plans describe training activities, credential requirements, train-the-trainer programs, training schedules, core curriculums and other related training program protocols for the Transit Division:

- Overhead Line Dept. Training Program Plan;
- Motive Power Training Program Plan;
- Maintainer Training Program Plan;
- Cable Car Operator & Trainer Training Program Plan;
- Cable Car Inspector Training Program Plan;
- Track Maintenance Worker Training Program Plan;
- On-Track Equipment Operations Training Program Plan;
- Rail Car Maintenance Worker Train-the-Trainer Training Program Plan;
- Training Program Plan for LRV Operator Training for Maintenance Workers;
- Rail Car Operation Training Program Plan;
- Performance and Incident Response (PIR) Training Program Plan;
- OCC Training Program Plan;
- Signal & Communications Unit Training Program Plan.

APPENDIX G: STATE SAFETY OVERSIGHT ELEMENTS WITHIN PTASP

	Element	Section
1	Policy Statement	SFMTA PTASP Policy Statement
2	Goals and Objectives	SFMTA PTASP Policy Statement and 1.3 Safety Goals
3	Management Structure	Appendix A: SFMTA and Operations Organization Chart
4	PTASP Changes	673.11 (5) Review and Update of PTASP
5	Implementing the PTASP	SFMTA PTASP Policy Statement
6	Hazard Management Program	673.25 Safety Risk Management
7	System Modification Review & Control	673.27(c) Management of Change
8	Safety Certification	673.27(c) Management of Change
9	Safety Data Acquisition/Analysis	673.27(b)(4) Internal Safety Reporting Program Monitoring
10	Accident Notification, Investigation, & Reporting	Appendix E: Rail Accident Investigation Procedures
11	Emergency Management Program	673.11(a)(6) Emergency Management Program
12	Internal Safety Review	673.27(b) Safety Performance Monitoring and Measurement
13	Rules/Procedures Compliance	673.29(a) Safety Training Program
14	Facility Inspections	673.27(b) Safety Performance Monitoring and Measurement
15	Maintenance Reviews/Inspections (All System & Facilities)	Appendix C: Operations and Maintenance Departments
16	Training and Certification	673.29(a) Competencies and Training
17	Configuration Management	673.27(c) Management of Change
18	Safety Requirements	673.29(b) Safety Communication
19	Hazardous Materials Program	673.29(b) Safety Communication
20	Drug and Alcohol Abuse Programs	673.27(b)(4) Internal Safety Reporting Program Monitoring

21	Procurement	673.25(d) Safety Risk Mitigation
22	Personal Electronic Devices	673.29(b) Safety Communication
23	Roadway Worker Protection	673.29(a) Safety Training Program

APPENDIX H: MATRIX OF STANDARD OPERATING PROCEDURES

SFMTA
SOP NUMBERING GUIDE

Title	Division	Unit	Sub-Unit	SOP
Transit Division (T)	T			
T – Transit Operations (TO)	T	2		
T - TO - Admin	T	2	1	
T - TO – Transit Operations Dispatch				1
T - TO - Bus Operations	T	2	2	
T - TO – Bus Operations – Bus Rule Book				1
T - TO – Bus Operations – Compliance Testing				2
T - TO -Rail Operations	T	2	3	
T - TO – Rail Operations – 2015 Rail Rule Book				1
T - TO – Rail Operations – Compliance Testing				2
T - TO -Streets/MRO/Station Ops	T	2	4	
T - TO – Streets/MRO/Station Ops – Performance and Incident Response Training Program Plan				1
T - TO – Streets/MRO/Station Ops – Metro Rail Operations Inspector Manual				2
T - TO – Streets/MRO/Station Ops - Movement through Surface Interlocking under Abnormal Conditions				3
T - TO – Streets/MRO/Station Ops – Station Operations Manual				4
T - TO – TMC	T	2	5	
T - TO - TMC Training Program Plan				1
T - TO - TMC OCC General Duties and Responsibilities				2
T - TO - TMC OCC Activity Guidelines and Standards				3
T - TO - TMC Permit and Clearance				4
T - TO - TMC Dispatch Consoles				5
T - TO - TMC Derailment and Split Switches				6
T - TO - TMC Communications				7
T - TO - TMC Emergency Notification				8

T - TO - TMC Flooding				9
T - TO - TMC Incidents				10
T - TO - TMC Vehicle Movements				11
T - TO - TMC Emergency Operating Procedures				12
T - TO - TMC Facility Incident Response				13
T - TO - TMC Bomb Threat				14
T - TO - TMC Civil Disorder Response				15
T - TO - TMC Earthquakes				16
T - TO - TMC Fire and Smoke				17
T - TO - TMC Subway Ventilation Fans				18
T - TO - TMC Overhead Lines and Traction Power				19
T - TO - TMC Restricted Area Access				20
T - TO - TMC Subway Emergency Management				21
T - TO - TMC Report Writing				22
T - TO - TMC Radio System Failure				23
T - TO - TMC Compliance Check				24
T - TO - TMC Drawbridge				25
T - TO - Operations Training	T	2	6	
T - TO – Operations Training Bus Operator's Training Manual				1
T - TO – Operations Training Cable Car Operator's Training Manual				2
T - TO – Operations Training Historic Streetcar Operator's Training Manual				3
T - TO – Operations Training Milan Streetcar Operator's Training Manual				4
T - TO – Operations Training Milan Streetcar Operating Procedures				5
T - TO – Operations Training PCC Streetcar Operator's Training Manual				6
T - TO – Operations Training LRV-Historic Streetcar Operations Training Program Plan				7
T - TO – Operations Training Rail Vehicle Transit Operator Compliance Program				8
T - TO – Operations Training Vintage Streetcar Operator's Training Manual				9
T - TO – Operations Training Vintage Streetcar Operating Procedures				10
T - Cable Car (CC)	T	3		
T - CC – Operations	T	3	1	

				1
T - CC – Machinery Maintenance	T	3	2	
T - CC – MM - Cable Car System Machinery Engineer Logbook				1
T - CC – MM - Cable Car Splicing and Maintenance				2
T - CC –MM - Splicer-Stop Switches Daily Test and Emergency Application				3
T - CC – MM - How to Reset a Strand Alarm				4
T - CC – MM- Cable Car Machinery Lock-out/Tag-out				5
T - CC – MM - Response to Bumper Bar Activation				6
T - CC – Track Maintenance	T	3	3	
T - CC – TM - Inspection of Sheave Pits				1
T - CC – TM - How to Change a Nine Inch Pulley				2
T - CC – TM - How to Replace a Depression Beam				3
T - CC – TM - Truck Boom Crane Operation				4
T - CC – TM - Cable Car Roadway Track Inspection & Maintenance				5
T - CC – Vehicle Maintenance	T	3	4	
T - CC – VM - Cable Car Push/Tow Procedures				1
T - CC – VM - Cable Car Defect Card				2
T - CC – VM - Cable Car Preventive Maintenance, Inspection and Scheduling				3
T - CC – VM - Cable Car Vehicle Acceptance				4
T - Rail Maintenance (RM)	T	4		
T - RM – LRV Maintenance (LRV-M)	T	4	1	
T – RM – LRV-M - Mandatory Rail Vehicle Hold				1
T – RM – LRV-M – Blue Light/Blue Flag				
T – RM – LRV-M –Rail Vehicle Preventive Maintenance and Inspection Scheduling				2
T – RM – LRV-M – Calibration and Measurement and Test Equipment for Rail Maintenance				3
T - RM – LRV-M - Mileage Tracking				4
T - RM – LRV – M - Disabled Rail Vehicle Tow/Push				5
T – RM – LRV – M - Green Division Heavy Overhaul Hoist Safety & Operations				6

T – RM – LRV – M - MME Division Kirk Key Interlock System Operation				7
T – RM – LRV – M - Preparation, Operation, and Maintenance on the Green Division Test Track				8
T – RM – LRV-M - Yard Departure Test Device Preventative Maintenance Procedure				9
T – RM – LRV-M - Release of Revenue Vehicles Put on Hold by Law Enforcement				10
T - RM – PCC Maintenance (PCC-M)	T	4	2	
T – RM – PCC-M - Overhead Catenary DC Disconnect Switch Systems Operations for Geneva Light Rail Facility				1
T - RM – Milan/Historic Cars Maintenance	T	4	3	
T - RM – Electric Shop Maintenance	T	4	4	
T - RM – Mobil Response Unit	T	4	5	
T - RM – Fleet Engineering	T	4	6	
T - Bus Maintenance (BM)	T	5		
T – BM - Hybrid Diesel (HD)	T	5	1	
T – BM – HD - New Flyer Hybrid Diesel PM				1
T - BM – HD - Orion Hybrid Diesel Bus PM				2
T – BM – Non-Hybrid Diesel (NHD)	T	5	2	
T – BM – NHD Neoplan Diesel PM				1
T – BM – Electric Trolley Bus (ETB))	T	5	3	
T – BM - ETB New Flyer Trolley Bus PM				1
T – BM – Electric Battery (EB)	T	5	4	
T – BM – EB – SOP				1
T – BM – Video Shop (VS)	T	5	5	
T – BM – VS – SOP				1
T – BM – Radio Shop (RS)	T	5	6	
T – BM – RS – SOP				1
T - Maintenance of Way (MOW)	T	6		
T - MOW – Infrastructure Maintenance (IM)	T	6	1	
T - MOW – IM-Facilities and Equipment Maintenance Plan Guidelines and Instruction				1
T - MOW – IM-Subway Station Emergency Egress Lighting Inspection and Maintenance				2

T - MOW – IM- Rail Systems Fire Protection Inspection and Maintenance				3
T - MOW - Track Maintenance (TM)	T	6	2	
T - MOW – TM - Track Maintenance Track Inspection & Maintenance				1
T - MOW – TM -Track Maintenance Curve Track Rail Lubrication				2
T - MOW – TM - Track Maintenance Track Maintenance Training Program Plan				3
T - MOW – Signal Maintenance (SM)	T	6	3	
T - MOW – SM - Signal Maintenance AC Track Circuit Preventive Maintenance				1
T - MOW – SM - Signal Maintenance ATCS Axle Counter Trackside Equipment PM				2
T - MOW – SM - Signal Maintenance ATCS Inductive Loop Cable PM				3
T - MOW – SM - Signal Maintenance ATCS Wayside Portal Intrusion Detection System PM				4
T - MOW – SM - Signal Maintenance ATCS Wayside Platform Emergency Stop PM				5
T - MOW – SM - Signal Maintenance ATCS Station Controller Subsystem PM				6
T - MOW – SM - Signal Maintenance ATCS Wayside Portal Intrusion Detector System				7
T - MOW – SM - Signal Maintenance ATCS Wayside Uninterruptible Power Supply				8
T - MOW – SM - Signal Maintenance Signal & Communications Maintenance Unit Training Program Plan				9
T - MOW – SM - Signal Maintenance Subway Fire Telephone System Preventive Maintenance				10
T - MOW – SM - Signal Maintenance Subway Station Courtesy Telephone Preventive Maintenance				11
T - MOW – SM - Signal Maintenance Subway Station Public Address (PA) System Preventive Maintenance				12
T - MOW – Traction Power (TP)	T	6	4	

T - MOW – TP - Traction Power Motive Power Unit Training Program Plan				1
T - MOW – TP - Traction Power Motive Power Inspection & Maintenance Manual				2
T - MOW – TP - Traction Power Non-Scheduled Work on Overhead Line Wires (4-Digit Lockout Code)				3
T - MOW – TP - Traction Power Overhead Lines Unit Training Program Plan				4
T - MOW – TP - Traction Power Overhead Lines Inspection				5
T - MOW – TP - Traction Underground Inspection Overhead Lines				6
T - MOW – Digital Maintenance (DM)	T	6	5	
T - Program Delivery (PD)	T	7		
T - PD – Fleet Engineering (FE)	T	7	1	
T - PD –FE - Fleet Engineering Warranty Administration Guidelines & Instructions				1
T - PD – Quality Assurance (QA)	T	7	2	
T - PD – QA LRV Quality Assurance Vehicle Assessment				1
T - PD – Maintenance Training (MT)	T	7	3	
T - PD – MT - On-Track Equipment Operations				1
T - PD – MT - On-Track Equipment Operator Training Program Plan				2
T - PD – MT - LRV Maintenance Operator Training Program Plan				3
T - PD – MT - PCC Historic Maintenance Operator Training Program Plan				4
T - PD – MT - Forklift Operations and Safety				5
T - PD – MT - Forklift Training Program Plan				6
T - PD – MT - Motive Power Unit Training Program Plan				7
T - PD - MT - LRV Maintainer Training Program Plan				8
T - PD - MT - PCC/Historic Streetcar Maintainer Training Program Plan				9
T - PD – Transit IT Systems (ITS)	T	7	4	
T – PD – ITS – SOP				1
T - Mechanical Systems & Tank Program (MST)	T	8		

T - MST – Underground Storage Tanks (UST)	T	8	1	
T – MST – UST – SOP				1
T - MST - Elevators & Escalators (EE)	T	8	2	
T - MST –EE - Subway Elevator/Escalator Malfunctions				1
T - MST – Subway Stationary Engineers (SSE)	T	8	3	
T - MST – SSE- Facilities and Equipment Maintenance Plan Guidelines and Instruction				1
Sustainable Streets (SS)	SSD			
SSD - Security & Investigation (SI)	SSD	1		
SSD - SI- Security Investigation/Video Surveillance (VS)	SSD	1	1	
SSD – S I -VS – Video Retrieval of On-Board and Facility Surveillance Videos				1
SSD - SI – Emergency Management (EM)	SSD	1	2	
SSD - SI- EM-Emergency Response Plan				1
SSD –SI- EM-Continuity of Operations Plan				2
Capital Programs & Construction (CPC)	CPC			
CPC – Capital QA (QA)	CPC	1		
CPC – QA - QA	CPC	1	1	
CPC – QA – QA – SOP				1
CPC – Construction Management (CM)	CPC	2		
CPC – CM – CM	CPC	2	1	
CPC – CM – CM - SOP				1
CPC – Engineering (ENG)	CPC	3		
CPC – ENG -	CPC	3	1	
CPC – ENG – SOP				1
CPC – Job Order Contracting (JOC)	CPC	4		
CPC – JOC -	CPC	4	1	
CPC – JOC – SOP				1
CPC – Project Controls and Support (PCS)	CPC	5		
CPC – PCS – PCS	CPC	5	1	
CPC – PCS - SOP				1
CPC – Contract Administration (CA)	CPC	6		
CPC – CA – CA	CPC	6	1	
CPC – CA – CA – SOP				1

Human Resources (HR)	HR			
HR – Employee Health and Wellness (EHW)		1		
HR – EHW – XX	HR	1	1	
HR – Employee Labor Relations (ELR)		2		
HR – ELR – XX	HR	2	1	
HR – People Analytics (PA)		3		
HR – PA – XX	HR	3	1	
HR – Talent Acquisition and Leave Management (TLM)		4		
HR – TLM – XX	HR	4	1	
HR – Worker's Compensation (WC)		5		
HR – WC – XX	HR	5	1	
HR – Work Force Development (WFD)		6		
HR – WFD – XX	HR	6	1	
HR – WFD – XX – SOP				1
Financial Information & Technology (FIT)	FIT			
FIT – Revenue Collection & Sales (RCS)	FIT	1		
FIT – RCS - Cash Handling	FIT	1	1	
FIT – RCS – Cash Handling - Field Security for Cash Handling				1
FIT – Contracts and Procurement (CP)	FIT	2		
FIT – CP - Materials Management (MM)	FIT	2	1	
FIT - CP- MM - Purchasing Materials and Supplies				1
FIT - CP- MM - Approved Equal Parts for Rail Cars				2
FIT - Information Technology (IT)	FIT	3		
FIT – IT – XX	FIT	3	1	
FIT – IT – Change Management Board				1
Safety Division	SA			
SA - Safety Administration (SD)	SA	1		
SA – SD – Database Administration (DA)	SA	1	1	
SA – SD – DA – Safety Event Reporting (SER)				1
SA – SD – Video Diagnostics (DriveCam)	SA	1	2	
SA – SD – DC – Video Event Analysis				1
System Safety (SS)	SA	2		

SS – Safety Event Investigation (SEI)	SA	2	1	
SA – SS - SEI - Bus Safety Event Investigation				1
SA – SS – SEI - Rail Safety Event Investigation				2
SA – SS – SEI – National Transit Database Reporting				2
SA – SS – Roadway Worker Protection (RWP)	SA	2	2	
SA – SS - RWP - Roadway Worker Protection Plan				1
SA – SS – RWP – RWP Training Program				2
SA – SS – Safety Audits	SA	2	3	
SA – SS – ISA Program – Rail				1
SA – SS – ISA Program – Bus				2
SA – SS – External Triennial Audits				3
Safety Management System (SMS)	SA	3		
SA – SMS – Safety Risk Management (SRM)	SA	3	1	
SA – SMS – SRM - Hazard Analysis				1
SA – SMS – Safety Assurance (SA)	SA	3	2	
SA – SMS – SA - Change Control Board				1
SA – SMS – SA - Muni Division Safety Committees				2
SA – SMS – SA - Rail Efficiency Testing				3
SA – SMS – SA - Safety/Security Certification				4
SA – SMS – SA - ATCS Upgrade Safety Certification Plan				5
SA – SMS – SA - Central Subway Safety/Security Certification Plan				6
SA – SMS –SA - SOP Development and Approval				7
SA – SMS –SA - Hours of Service – Rail Operations				8
SA – SMS - SA - Hours of Service – Bus Operations				9
SA – SMS - SA - Incident Command				10
SA – SMS - LRV4 Safety/Security Certification Plan				11
SA – SMS – Fire/Life Safety Committee				12
SA - Industrial Safety and Environmental Compliance (ISEC)	SA	4		
SA – ISEC – Industrial Safety (IS)	SA	4	1	
SA – ISEC – IS - Injury and Illness Prevention Program				1

SA – ISEC – IS - Hearing Conservation Program				2
SA – ISEC – IS - Automated External Defibrillator Program				3
SA – ISEC – IS - Confined Space Entry Program				4
SA – ISEC – IS - Eye Protection Program				5
SA – ISEC – IS - Foot Protection Program				6
SA – ISEC – IS - Flame Retardant Clothing				7
SA – ISEC – IS - Lockout/Tagout Hazardous Energy Control Program				8
SA – ISEC – IS - Traffic Control				9
SA – ISEC – IS - Fall Protection Program				10
SA – ISEC – Industrial Hygiene (IH)	SA	4	2	
SA – ISEC – IH - Hazardous Material Communication Program				1
SA – ISEC – IH - Asbestos Operations and Maintenance Program				2
SA – ISEC – IH - Blood Borne Pathogen Exposure Control Plan				3
SA – ISEC – IH - Blood Borne Pathogen Exposure Control Plan				4
SA – ISEC – IH - Lead-Based Paint Abatement				5

APPENDIX I: SYSTEM DIAGRAM

Metro Light Rail System

Complete Municipal Railway System