Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90042

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PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

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Version History	*Issue Date*	*Revisions*	*Author(s)*
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METRO PUBLIC TRANSPORTATION AGENCY SAFETY PLAN POLICY STATEMENT

The Los Angeles County Metropolitan Transportation Authority (Metro) has adopted as its guiding principle that Safety is a primary value for our customers, employees, and business partners. This means that safety takes a pre-eminent role in decision making before all other considerations. All levels of management and all employees are accountable for the delivery of this highest level of safety performance, starting with the Chief Executive Officer (CEO). This Public Transportation Agency Safety Plan (PTASP) is the means of integrating safety into all Metro rail and bus system operations. With the methodologies contained in the PTASP, we can achieve an optimal level of safety in our operations and services.

The PTASP integrates the four components of Safety Management Systems (Safety Management Policy, Safety Risk Management, Safety Assurance, and Safety Promotion) to lay the foundation of Metro's Safety Culture.

Each department has responsibilities under the PTASP and shall support its implementation. Employees are encouraged to read the PTASP available on MyMetro under Risk, Safety & Asset Management department's webpage. Departments shall also provide the on-going support necessary for achievement of the following PTASP Safety Objectives:

- Establish safety policies, procedures, and requirements that integrate safety into Metro's decision-making and operations.
- Implement Safety Management System (SMS) Principles and utilize the American Public Transportation Association's (APTA) Standards, Recommended Practices, and Guidelines as resources in developing Metro's policies/procedures.
- Assign responsibilities related to safety policies, procedures, and requirements.
- Verify adherence to safety policies, procedures, and requirements.
- Investigate accidents, incidents, fires, and occupational injuries.
- Identify, analyze, evaluate and resolve/mitigate hazards and near misses.
- Evaluate and verify the operational readiness of new systems.
- Minimize system modifications related to safety during the operational stage by reviewing safety requirements at system design and procurement stages.

- Conduct safety performance monitoring to determine trends and implement corrective actions.
- Evaluate the safety implications of proposed system modifications prior to implementation.

A key to the success of the PTASP is for employees to be aware that they are accountable for meeting the safety requirements of their positions. In other words, everyone is responsible for safety. Beyond this, its success depends on all employees actively identifying potential hazards and taking into consideration the safety of others as well as their own. All employees have an obligation to report hazards, and near miss occurrences to their department management.

The safety department, led by the Chief Risk, Safety, & Asset Management Officer is responsible for developing, administering and overseeing a comprehensive PTASP with specific objectives, programs and activities to prevent, control and resolve unsafe conditions/hazards that may occur during the life cycle of the bus and rail systems. The safety department will be involved in projects beginning from the conceptual stage, and through the design, procurement, construction, and operational stages. Metro's Safety objectives and safety performance targets/measures included in this PTASP are consistent with the National Public Transportation Safety Plan and fulfill the requirements of 49 Code of Federal Regulations (CFR) Part 673, which is the authority that establishes this PTASP.

We must appreciate the fact that our decisions and actions often affect the safety of our employees, our customers, the public, and business partners. By following the processes described in the PTASP, we will have continued opportunities to improve overall performance and safety. Metro's Board of Directors and Executive Leadership are committed to full implementation of this PTASP through their leadership and assuring the allocation of necessary resources.

Phillip A. Washington
Chief Executive Officer

3/20/2020
Date

Place holder for Board Approved Documentation

Acronyms/Abbreviations

	Meaning
ADA	Americans with Disabilities Act
AIP	Accident Investigation Procedures
APTA	American Public Transportation Association
ATO	Automatic Train Operation
ATP	Automatic Train Protection
ATS	Automatic Train Supervision
BOC	Bus Operations Control
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission (State Safety Oversight Agency)
CRSAM	Chief Risk Safety and Asset Management Officer
EXPO	Metro Expo Line
FBI	Federal Bureau of Investigation
FE	Functional Exercise
FLSC	Fire/Life Safety Committee
FOF	Field Observation and Feedback
FSE	Full Scale Exercise
FTA	Federal Transit Administration
GO	General Order
ISR	Internal Safety Review
LACTC	Los Angeles County Transportation Commission
LADOT	Los Angeles Department of Transportation
LCP	Local Control Panel
LSC	Local Safety Committee
MPO	Metropolitan Planning Organization
MPH	Miles Per Hour
MBL	Metro Blue Line
MGL	Metro Green Line
MPL	Metro Purple Line
MRL	Metro Red Line

Metro	Los Angeles County Metropolitan Transportation Authority
NTD	National Transit Database
OCI	Operations Central Instruction
OSHA	Occupational Safety and Health Administration
OSSC	Operations Safety Steering Committee
PGL	Pasadena Gold Line
PLE	Purple Line Extension
PTASP	Public Transportation Agency Safety Plan
PM	Preventative Maintenance
ROC	Rail Operations Control
RSAM	Risk, Safety & Asset Management
RTA	Regional Transit Authority
RTI	Rail Transportation Instruction
RTOS	Rail Transportation Operations Supervisor
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCRT	Safety Certification Review Team
SCRTD	Southern California Rapid Transit District
SMRC	System Modification Review Committee
SMS	Safety Management System
SOP	Standard Operating Procedure
SWAT	Special Weapons and Tactics
TAM	Transit Asset Management
TEPW	Training and Exercise Planning Workshop
TOS	Transportation Operations Supervisor
TSA	Transportation Security Administration
TTX	Tabletop Exercise
U.S.C.	United States Code

Definitions

Definitions have been adapted from 49 CFR 673 and the CPUC's Program Standard. If there is a conflict of definition between the CPUC Program Standard and the FTA definitions, the Program Standard will take precedence provided it is equally, or more restrictive in its language. The source of the definition is also identified.

Accident means an Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision involving a rail transit 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. (Program Standard definition)

Accountable Executive means a single, identifiable person who has ultimate responsibility for carrying out the Public Transportation Agency Safety Plan of a public transportation agency; responsibility for carrying out the agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the agency's Public Transportation Agency Safety Plan, in accordance with 49 U.S.C. 5329(d), and the agency's Transit Asset Management Plan in accordance with 49 U.S.C. 5326. In this case Metro's Chief Executive Officer will be considered the Accountable Executive. (673 definition)

Board of Directors means the entity with sufficient authority to review and approve a recipient or subrecipient's Public Transportation Agency Safety Plan. (673 definition only)

Chief Safety Officer means an adequately trained individual who has responsibility for safety and reports directly to a transit agency's chief executive officer, general manager, president, or equivalent officer. A Chief Safety Officer may not serve in other operational or maintenance capacities, unless the Chief Safety Officer is employed by a transit agency that is a small public transportation provider as defined in this part, or a public transportation provider that does not operate a rail fixed guideway public transportation system. (673 definition only)

Contractor means an entity that performs tasks on behalf of FTA, Commission, or RTA through contract or other agreement. (Program Standard, CPUC only)

Corrective Action Plan (CAP) means a plan developed by a RTA that describes the actions the RTA will take to minimize, mitigate, control, correct, or eliminate risks and hazards, and the schedule for implementing those actions. (Program Standard, CPUC only)

Event means any Accident, Incident, or Occurrence. (673 definition)

FTA means the Federal Transit Administration, an operating administration within the United States Department of Transportation. (673 definition)

Hazard means any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock or infrastructure of a RTAs; or damage to the environment. (Program Standard definition)

Incident means an Event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or

damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency. (673 definition)

Individual means a passenger, employee, contractor, pedestrian, trespasser, or any person on RTA-controlled property. (Program Standard, CPUC only)

Inspectors means the Commission's Rail Transit Operations Safety Section personnel that conduct onsite visits to inspect RTA infrastructure, vehicles, operations, maintenance practices, and other activities to identify noncompliance, safety concerns, and unsafe conditions. (Program Standard, CPUC only)

Investigation means the process used to determine the causal and contributing factors of an accident, incident, or hazard, for the purpose of preventing recurrence and mitigating risk. (Program Standard definition)

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. (673 definition only)

Occurrence means an Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of a transit agency. (673 definition)

Operator of a public transportation system means a provider of public transportation as defined under 49 U.S.C. 5302(14). (673 definition only)

Passenger means a person who is on board, boarding, or alighting from a rail transit vehicle for the purpose of travel. (Program Standard, CPUC only)

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. (673 definition only)

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. (673 definition only)

Person means any individual. (Program Standard, CPUC only)

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

Rail fixed guideway public transportation system means any fixed guideway system that uses rail, is operated for public transportation, is within the jurisdiction of a State, and is not subject to the jurisdiction of the Federal Railroad Administration, or any such system in engineering or construction. Rail fixed guideway public transportation systems include but are not limited to rapid rail, heavy rail, light rail, monorail, trolley, inclined plane, funicular, and automated guideway. Rail transit agency means any entity that provides services on a rail fixed guideway public transportation system. (673 definition only)

Rail Fixed Guideway System (RFGS) means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, cable car, automatic people mover, or automated guideway transit system used for public transit and not regulated by the Federal Railroad Administration or not specifically exempted by statute from Commission oversight. Part 674, includes "Public Transportation" as part of its definition, and is Rail Fixed Guideway Public Transportation System for a fixed guideway system and to be more inclusive of other systems currently under the Commission's jurisdiction. (Program Standard, CPUC only)

Rail Transit Agency (RTA) means the entity that plans, designs, constructs, and/or operates a RFGS and is within the jurisdiction of the Commission. (Program Standard, CPUC only)

Risk means the composite of predicted severity and likelihood of the potential effect of a hazard. (673 definition only)

Risk mitigation means a method or methods to eliminate or reduce the effects of hazards. (673 definition only)

Safety means freedom from harm resulting from unintentional acts or circumstances. (Program Standard, CPUC only)

Safety Assurance means processes within a transit agency's Safety Management System that functions to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information. (673 definition only)

Safety Certification is the series of acts or processes that collectively verify the safety readiness of a Project for public use. (Program Standard, CPUC only)

Safety Certification Plan means a Project-specific document developed by a RTA, which ensures that elements critical to safety are planned, designed, constructed, analyzed, tested, inspected, and implemented, and that employees are trained and rules and procedures followed, in compliance with the RFGS and the regulatory safety requirements. (Program Standard, CPUC only)

Safety Design Criteria means the organized listing of safety codes, regulations, rules, design procedures, existing industry standards, recommended practices, analyses, handbooks and manuals prepared to provide guidance to Project designers in development of technical specifications that meet minimum safety parameters. (Program Standard, CPUC only)

Safety Management Policy means a transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees in regard to safety. (673 definition only)

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. (673 definition)
Safety Management System (SMS) Executive means a Chief Safety Officer or an equivalent. (673 definition only)

Safety performance target means a Performance Target related to *safety* management activities. (673 definition only)

Safety Promotion means a combination of training and communication of *safety* information to support SMS as applied to the transit agency's public transportation system. (673 definition only)

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. (673 definition only)

Safety Risk Management means a process within a Metro's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk. (673 definition only)

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. (Program Standard definition)

State means a State of the United States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, Guam, American Samoa, and the Virgin Islands. (673 definition only)

State of good repair means the condition in which a capital asset is able to operate at a full level of performance. (673 definition only)

State Safety Oversight Agency (SSOA) means an agency established by a state that meets the requirements and performs the functions specified by 49 U.S.C. 5329(e) and the regulations set forth in 49 CFR Part 674. In California, the California Public Utilities Commission (CPUC) is the SSOA, and the CPUC's RTSB implements the CPUC's SSOA program. (Program Standard definition)

Transit agency means an operator of a public transportation system. (673 definition only)

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. (673 definition only)

1.0 INTRODUCTION

This document is the Los Angeles County Metropolitan Transportation Authority's (Metro) Public Transportation Agency Safety Plan (PTASP) for the Bus and Rail systems. This PTASP embodies the elements in 49 CFR Part 673 established July 19, 2018 which focuses on establishing a Safety Management System (SMS). The section numbers referenced throughout this document refer to the requirements of 49 CFR Part 673.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."

Metro's PTASP establishes accountability and responsibility at the top levels of the organization, evidenced by the Metro Board's Approval and CEO's commitment to allocate necessary resources to sustain and improve Metro's safety culture. This plan explains each organizational unit's function within the larger Metro System and how accountability for safety is integrated throughout the organization. This PTASP also describes the four components integral to the successful implementation of SMS within the Metro System (outlined below): Safety Management Policy, Safety Risk Management, Safety Assurance, and Safety Promotion.

Metro's Safety Management Policy is divided into four sub-components:

1. Safety Management Policy Statement
2. Safety Accountabilities and Responsibilities
3. Integration with Emergency Management
4. SMS Documentation and Records

Metro's Safety Risk Management component includes:

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

Metro's Safety Assurance component includes:

1. Safety performance monitoring and measurement
2. Management of change
3. Continuous Improvement

Metro's Safety Promotion component includes:

1. Safety Training Program
2. Safety Communication

1.1 METRO BACKGROUND

Assembly Bill 1784 required the Los Angeles County Transportation Commission (LACTC) and the Southern California Rapid Transit District (SCRTD) to submit a plan to the legislature by January 1992, which reorganized the agencies to provide "a unified comprehensive institutional structure which requires maximum accountability to the people."

Assembly Bill 152, signed by Governor Pete Wilson on May 19, 1992 merged the LACTC and SCRTD into the Los Angeles County Metropolitan Transportation Authority (Metro), effective April 1, 1993. All responsibilities and obligations previously assumed by SCRTD and LACTC have been assumed by Metro, which is a public corporation of the State of California. Metro is generally responsible for the planning, design, construction, operation, and maintenance of rail and bus transit in the County of Los Angeles, however, the State Legislature has designated other agencies who are responsible for the design and construction of certain projects, such as the Gold Line Extension Project.

The 13-member Board of Directors that governs Metro is comprised of:

- The five Los Angeles County Supervisors
- The Mayor of Los Angeles
- Three Los Angeles mayor-appointed members
- Four City council members representing the other 87 cities in Los Angeles County

The Governor of California appoints one non-voting member.

Metro has authority to furnish public transportation services in Los Angeles County and in parts of adjacent counties. Metro is also authorized to administer Proposition A funds for the operation of municipal transit agencies in this area.

1.2 SCOPE AND PURPOSE

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

The PTASP will be used to identify programs and processes to minimize injuries and accidents. It also demonstrates Metro's commitment to safety. In addition, this PTASP complies with the requirements of 49 Code of Federal Regulations Part 673, issued by the FTA.

1.3 ORGANIZATIONAL CHART

Metro Leadership and Executive Management is displayed in Appendix A. Metro Operations organizational chart can be seen Appendix B.

1.4 SYSTEM DESCRIPTION

Metro's operational system is summarized within Appendix C.

1.5 SAFETY GOALS

- Provide a level of safety in transit services that meets if not exceeds industry standards and practices
- Identify, eliminate, minimize, and/or control safety hazards and their associated risks
- Comply with the applicable requirements of regulatory agencies
- Maximize the safety of future operations by affecting the design and procurement processes
- Continuously improve the safety culture by striving to incorporate innovative technologies

Subpart B - Safety Plan

Subpart B of this PTASP incorporates Metro's conformance with 49 CFR 673 including establishing safety performance targets, review and update of this document, emergency management protocols, and coordination with planning stakeholders.

§673.11(a)(3) SAFETY PERFORMANCE MEASURES AND PERFORMANCE TARGETS

Metro's safety performance measures are based on the measures established under the National Public Transportation Safety Plan. A detailed list of these safety performance measures and performance targets are found in Appendix D.

§673.11(a)(4) CONFORMANCE WITH FTA GUIDELINES

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

§673.11(a)(5) REVIEW AND UPDATE OF PTASP

This PTASP will be reviewed annually, by the RSAM department, to make necessary updates, corrections, and modifications in accordance with the CPUC established rules. RSAM will seek feedback from affected departments to determine if any changes are needed. Any significant changes (such as Hazard Management Program, Accident Investigation Procedures, regulations that affect the content of this plan), excluding nominal administrative changes, to the body of the plan will be made and presented to the Metro CEO for adoption by the Board of Directors. RSAM will update the Revision table annually with a new Revision number for the PTASP regardless if any changes need to be made.

After the PTASP review, the RSAM department will provide the revision to the CPUC. Metro will request CPUC's review and approval in accordance with CPUC established rules if any significant changes are made to the PTASP.

The RSAM department is responsible for preparing, maintaining, and updating the PTASP.

§673.11(a)(6) EMERGENCY MANAGEMENT PROGRAM

Operational Emergencies:

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

RAIL MODE

Currently, all emergency response procedures for rail operations are found in Metro Rail Book of Operating Rules and SOPs. Examples of these emergencies are Train vs. Person, Collision, Earthquake, Flood, etc. For an extensive list, refer to Metro Rail SOPs. Additionally, in accordance with the CPUC General Order 172 series requirements, Metro has developed Metro Rail SOP #65, which are procedures for contacting employees in the event of a personal or family emergency.

BUS MODE

Currently, all emergency response procedures for bus operations are found in BOC Standard Operating Procedures. Examples of these emergencies are Requests for Police or Emergency Medical Assistance, and Earthquake. For an extensive list, refer to Metro BOC SOPs. Additionally, Metro BOC is responsible for contacting Bus employees in the event of a personal or family emergency.

Emergency Preparedness:

RAIL MODE

Rail Operations in coordination with Metro's Emergency Management Department conducts emergency response training exercises at least once each year on every rail line comprised of either an operations based Full Scale Exercise (FSE), Functional Exercise (FE), or multiple exercises to prepare for emergencies.

Emergency Management's Annual Training & Exercise Planning Workshop (TEPW) with Rail Operations and Corporate Safety determine exercise scenarios, locations, and schedule for each Rail line. Scenarios may be selected based on recent/past incidents worldwide, changes in procedures or regulations, implementation of training, testing or projects, and lastly management concerns. Additionally, within the TEPW a draft training & exercise calendar is developed for when the exercises will be conducted throughout a calendar year.

Based on the type of exercise, FSE or FE, a discussion based Tabletop Exercise (TTX) is conducted where participants have the opportunity to discuss in detail their response procedures that will be used in the FSE or FE. These lessons are documented as strengths

and improvements in exercise reports or after-action reports and corrective action matrices. These exercises enhance inter-agency communication and coordination with State, Federal, regional, and local agencies, (such as CPUC, FBI, TSA, SWAT, Cities, County Fire and Law Enforcement personnel, and regional hospitals), and enable Metro staff to train for potential emergency scenarios.

Prior to each exercise, a pre-exercise conference is scheduled with the appropriate agencies to plan and discuss the exercise scope and activities. More meetings may be scheduled depending on the complexity of the exercise. Following the exercise, a post-exercise debriefing is convened with representatives from all participating agencies to review the performance of the exercise, and to identify "lessons learned." These lessons are documented in exercise reports or after-action reports and matrices.

When "lessons learned" affect current procedures, the affected disciplines in Rail Operations determine what changes are needed and implement them. If such changes are made, all stakeholders receive a copy of the revised procedure or are notified with Bulletins or other accepted notification procedures.

Metro Rail Training Instruction staff provides training to outside agencies on an as-needed basis when requested. Past training has included familiarization of the rail cars, station and tunnel orientations, and tours of the ROC. Periodic reminders of the availability of this emergency preparedness training are sent by Rail Transportation Instruction to the Metro's Los Angeles Fire Department liaison and Law Enforcement.

Metro's Emergency Management Department is responsible for coordinating all system-wide emergency response planning. Prior to opening new segments of the rail system, training sessions and familiarization exercises are conducted for all emergency response agencies which have jurisdiction along the route.

BUS MODE

Bus Operations in coordination with Metro's Emergency Management department conducts emergency response training exercises throughout the year. Emergency Management's Annual Training & Exercise Planning Workshop (TEPW) with Bus Operations selects 4-6 Divisions to conduct an exercise along with recommended scenarios. Divisions and scenarios may be selected based on recent/past incidents worldwide, changes in procedures or regulations, implementation of training, testing or projects, new facility, no exercise in over 2 years, and lastly management concerns. Additionally, within the TEPW a draft training & exercise calendar is developed for when the exercises will be conducted throughout a calendar year. These exercises enhance inter-agency communication and coordination with State, Federal, regional, and local agencies, (such as FBI, TSA, SWAT, Cities, County Fire and Law Enforcement personnel, and regional hospitals), and enable Metro staff to train for potential emergency scenarios.

Prior to each exercise, a pre-exercise conference is scheduled with the appropriate agencies to plan and discuss the exercise scope and activities. More meetings may be scheduled depending on the complexity of the exercise. Following the exercise, a post-exercise debriefing is convened with representatives from all participating agencies to review the performance of the exercise, and to identify lessons learned. These are documented in exercise reports or after-action reports and matrices.

When lessons learned affect current procedures, the affected disciplines in Bus Operations determine what changes are needed and implement them. If such changes are made, all copyholders receive a copy of the revised procedure or are notified with bulletins or other accepted notification procedures.

Disaster Recovery:
Metro's Emergency Preparedness department manages disaster recovery efforts and uses the Disaster Recovery Plan as a guideline in the event of catastrophic scenarios outlined in the plan.

§673.13 CERTIFICATION OF COMPLIANCE

Metro will certify this PTASP initially and annually thereafter through the FTA's Certification and Assurances process via Metro's Grants Management and Oversight department.

§673.15 COORDINATION WITH PLANNING STAKEHOLDERS

During the development of this PTASP, Metro coordinated with the CPUC and the local Metropolitan Planning Organization (MPO), which is the Southern California Association of Governments (SCAG). Metro provided a copy of this document to SCAG for their review and comments, including sharing Metro's proposed performance targets to aid in their planning process.

Subpart C- Safety Management System (SMS)

As outlined in the introduction section of this PTASP, the SMS components lay the foundation of Metro's Safety Culture. The processes identified in the four SMS components below lead Metro to a safer more reliable system allowing for teamwork, vigilance, and accountability to permeate all facets of the organization.

§673.23 SAFETY MANAGEMENT POLICY

Metro's Safety Management Policy is the organization's commitment to safety, which defines our objectives, accountabilities and responsibilities of our employees regarding safety.

§673.23(a) WRITTEN STATEMENT OF POLICY

With respect to the organizational accountabilities and responsibilities, please refer to Metro's Safety Management Policy Statement at the beginning of this document.

§673.23(b) PROCESS FOR REPORTING UNSAFE CONDITIONS

Metro has established a process for employees to report hazards, unsafe conditions and near miss occurrences to management as described in §673.25 *Safety Risk Management* of this document.

Metro's hazard reporting process (SAFE-7) affords employees protection from reprisal* by providing an opportunity to submit hazards/near-miss occurrences transparently or anonymously. Furthermore, as mentioned in Metro's Safety management policy, "All employees have an obligation to report hazards, and near miss occurrences to their department management".

*Near-Miss occurrences that are captured through Metro's reporting systems, such as SCADA, SMART DRIVE, and Supervisor Observation are not subject to protection from reprisal, if they are deemed to be egregious or violate a major rule as defined by the collective bargaining agreement.

§673.23(c) SAFETY MANAGEMENT POLICY COMMUNICATION

Metro's Safety Policy will be distributed to Metro personnel using various methods, such as, email and/or sign-for documentation. This policy will be posted at all divisions, and will be incorporated into the New Hire Orientation process during the On-Boarding Presentation.

§673.23(d) AUTHORITIES, ACCOUNTABILITITES, AND RESPONSIBILITIES

The central approach used in achieving PTASP goals and objectives involves having all Metro personnel being responsible for safety and taking into consideration the safety implications of their decisions. It uses a proactive approach that stresses looking at systems, and proposed modifications to these systems from a safety perspective before losses occur. The PTASP also requires that employees look at how their actions may affect the safety of other interrelated systems.

All Metro personnel have general safety-related tasks under the PTASP. These include the following:

The Chief Executive Officer, who is the Accountable Executive, has the following Authorities, Accountabilities, and Responsibilities under this plan:

- Control and Direction over human and capital resources needed to develop and maintain both the PTASP, in accordance with 49 USC 5329 (d), and the Transit Asset Management (TAM) Plan in accordance with 49 U.S.C. 5326
- Designate a Chief Safety Officer in accordance with 49 CFR 673.23(d)(2)
- Ensure that Metro's SMS is effectively implemented throughout Metro's public transportation system
- Ensuring action is taken to address substandard performance in Metro's SMS
- Metro's Safety Performance
- Ultimate responsibility for carrying out Metro's PTASP
- Carry out Metro's TAM Plan
- Establishment and implementation of the PTASP.

The Chief Risk, Safety & Asset Management Officer (CRSAM), serves as the Chief Safety Officer (CSO) and reports directly to the CEO. The CSO has the following Authorities, Accountabilities and Responsibilities under this plan:

- Day-to-day Implementation and Operation of Metro's SMS
- Ensure action is taken to address substandard performance in Metro's SMS
- Advise Accountable Executive on SMS progress/status
- Ensure Metro policies are consistent with PTASP Goals and Objectives

The CSO does not have any responsibilities for Operations and Maintenance functions at Metro.

Metro Leadership and Executive Management* has the following Authorities, Accountabilities and Responsibilities under this plan:

- Implementation and Operation of the Metro's SMS as it applies to their respective business unit
- Allocate resources within respective business units to accomplish Goals and Objectives of PTASP

- Accountable for business unit oversight, day-to-day operations and maintaining compliance with the PTASP
- Modify policies consistent with implementation of the PTASP and other Statutory regulations

*These are staff who have a direct reporting relationship to the Chief Executive Officer (Accountable Executive).

Key Staff** has the following Authorities, Accountabilities and Responsibilities:

- Accountable for maintaining the infrastructure or program within their area of responsibility
- Accountable for compliance with the Programs and Processes identified within the PTASP
- Support development, implementation and operation of SMS within Metro's PTASP
- Maintain Documents that support the implementation of the PTASP
- Review and investigate SAFE 7 reports and implement corrective actions, as appropriate, in a timely manner
- Investigate employee injuries and document findings of investigations in Metro's reporting system
- Verify PTASP compliance and report deviations to the safety department

**Key Staff are people who directly oversee a division, facility, craft, and all staff in the organizational structure up to but not including Executive Management.

Additional departmental roles and responsibilities are outlined in Appendix E.

§673.25 SAFETY RISK MANAGEMENT

Safety Risk Management is a cornerstone to SMS. During this process Metro identifies, evaluates, and devises means to eliminate, mitigate the risk of, or accept hazards. Not all hazards can be eliminated given the resources at hand. Metro's goal with Safety Risk Management is to mitigate the risk of hazards to a level as low as reasonably practicable – to a level where the cost involved in reducing the risk further would be grossly disproportionate to the benefit gained. The processes outlined in this section describe Metro's approach for identifying hazards, reporting them, investigating them, evaluating them, and finally mitigating the risk from them.

§673.25(a) SAFETY RISK MANAGEMENT PROCESS

This process involves identifying, reporting, investigating, evaluating, and mitigating risk of work place hazards and near miss incidents through various means. Once identified and reported, the hazard's risk is evaluated, corrected or mitigated by

implementing design changes, installing safety devices, installing warning devices/signage, or changing work practices/work procedures to provide a level of safety that is practical with the available resources of the agency.

§673.25 (b) Safety Hazard/Near-Miss Incident Identification, Reporting and Investigation.

Hazards may be identified by the following sources or methods:
1. As a result of occupational injury or illness investigations
2. As a result of accident investigations
3. By observing the working environment and any changes in the workplace. (e.g. FOF)
4. As a result of routine and non-routine Inspections
5. From Hazard/Near-Miss Incident Reporting by Employees
6. As a result of Lessons Learned
7. From Internal and External Audits
8. From data and information provided by the CPUC/FTA in their inspection reports (§673.25(b)(2))

Metro has adopted an electronic Hazard/Near-Miss Incident Reporting System called SAFE-7 that is available to all Metro employees. Any employee can use the SAFE-7 system to report a Hazard/Near-Miss Incident and can submit reports transparently or anonymously if they choose to do so. However, all hazards/near-miss incidents identified by employees must be reported through the SAFE-7 system. This consistent process is necessary to properly record, track, and trend hazards and it also allows management to provide a response back to the employee who submitted the Hazard/Near-Miss Incident.

After a hazard(s) is entered into the SAFE-7 system, the responsible department head shall:
1. Conduct an investigation of the SAFE-7 Report.
2. Document the results of the investigation in the SAFE-7 system within 30-days of notification. The documentation must include all supporting information as necessary (i.e. Photos, Measurements, etc.) to explain how the investigation was performed.
3. Provide a response back to the employee who submitted the SAFE-7 report, or post it on the safety bulletin board if the report was submitted anonymously.
4. Approve the mitigation, monitor the mitigation to completion, close the incident in the Safe-7 system, and post the summary of reported hazards/near misses (SAFE-15 logs).

The employee is responsible for checking the status of their reported hazard via their incident number which is provided to them once the hazard is reported, or if they submitted an anonymous report, by checking their respective Safety Bulletin Board, which is at every division, facility or location. If within 30 days the results of the

investigation are not in the SAFE-7 system or have not been posted on their Safety Bulletin board, the employee may submit their SAFE-7 report to Corporate Safety, Mail Stop 99-11-3 for follow up.

The Safety department will report to the CPUC any specific hazards as identified in CPUC regulations.

§673.25(c) Safety Risk Assessment

The safety department will be responsible for assessing each safety hazard and assigning a priority level as listed below. See Table 1 for Priority Matrix.

Priority #1 Hazard will occur frequently or often and could result in fatality
Priority #2 Hazard will occur infrequently and could result in a fatality; or frequently or often and could result in a serious disabling injury
Priority #3 Hazard will occur infrequently with a serious disabling injury; or any probability with a minor injury or no injury

Frequently = once per week for 4-5 consecutive weeks at a specific location on a specific line
Often = once per month for 3-4 consecutive months at a specific location on a specific line
Infrequently = once every 6 months

Priority #1	Priority #2	Priority #3
Frequently with Fatality	Infrequently with Fatality	Infrequently with Serious Disabling Injury
Often with Fatality	Frequently or often with Serious Disabling Injury	Any probability with minor or no Injury

Table 1: Priority Matrix

The safety department may determine that even though a particular hazard does not meet one of the above priority ratings, it may warrant an assessment and mitigation.

Regardless of how the hazard was originally identified, the Local Safety Committees maintain a log (SAFE-15) to track all hazard reports and to record the completion of corrective actions.

§673.25(d) Safety Risk Mitigation

The department/division management to whom the SAFE-7 is reported will attempt to correct all hazards identified. For those hazards that cannot be rectified in a reasonable and timely manner, (depending on the nature of the hazard, and whether the resolution is within Metro's control), management will establish a target completion date. The department/division management will analyze the hazards, including near-miss incidents, and develop recommendations for elimination or risk mitigation of the hazard. Interim measures to mitigate the risk of the hazard should be implemented until the final corrective action is completed. Recommendations may include modification of equipment or facilities design, changes to maintenance schedules or practices, revision of operating rules/procedures, employee training, relocation of bus stop locations, modifications to rail stations, installation of traffic control devices or traffic signs, and markings, etc. Although other Metro departments or external agencies may have the responsibility to implement corrective actions, the department head who received the SAFE-7 report is ultimately responsible for follow up activities and making sure the corrective action is completed. If another department is responsible for the implementation of the mitigation, department management shall include the name of the person and entity responsible (i.e. Metro Department, City, LADOT, etc.) for taking corrective action with a target date of implementation.

Once the hazard has been corrected or risk mitigated, division management is responsible for documenting the resolution within SAFE-7. If the risk from the unsafe condition is not or cannot be mitigated, a reason should be provided within the SAFE-7 system.

Imminent Safety Hazards

- For serious hazards that are immediately dangerous to life and health, employees shall take immediate action to mitigate the risk of the hazard. Documentation of the hazard within SAFE-7 can follow after such immediate action is taken.
- If the hazard cannot be immediately abated, all personnel are to be removed from the affected area until their health and safety can be assured. Safety and department/division management will be notified.

Proactive Risk Mitigation through Procurement

Metro's Procurement process ensures that materials and services obtained by Metro do not degrade the safety of the transit system. This involves including safety requirements in contracts and obtaining Safety Data Sheets (SDS). The SDS Program has established specific procedures for the acquisition and dissemination of information regarding hazardous materials. Approved SDS information can be accessed via Metro desktop computers at all Metro Divisions via the SDS database.

Materials are evaluated by the safety department for safety implications prior to purchase and/or use. When new materials/chemicals are delivered, the inventory

control department verifies via Metro's enterprise asset management software system, that the item delivered has been previously approved. The Operations and Maintenance Departments 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 parts must follow established procedures. Parts may not be substituted without prior authorization of a manager within the department and only if the substitution will not adversely affect the safety of any system.

Functions of the Procurement Department include:

- Ensure procurement process complies with established procedures for evaluating materials and products for use by Metro
- 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 Industrial Hygiene and Environmental Safety Section 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 Corporate Safety related to hazardous substance acquisition, handling, labeling, storage, disposal, and record keeping. Ensure that SDS requirements are met and copies maintained for all materials and that the materials undergo an evaluation by the Industrial Hygiene and Environmental Safety Section prior to use
- Ensure that contractors meet requirements related to the safety of Metro employees, property and the public

Proactive Risk Management through Asset Management Condition Assessment

Metro's Enterprise Transit Asset Management (ETAM) group conducts condition assessments of some of Metro's assets consistent with TAM Rule 49 CFR Part 625. The results of the condition assessments performed for TAM purposes are shared with various Metro stakeholder departments such as Operations and Corporate Safety. Metro's TAM plan includes a process for reviewing funding needs in the Long Range Plan and capital project proposals against the prioritized asset inventory which serves as a decision support tool. Department heads will be responsible for prioritizing and addressing the safety issues as identified in the condition assessment reports. The implementation of remediation measures will be tracked and reviewed in the Quarterly OSSC meeting. Based on the condition assessment reports that are provided to internal stakeholders, Operations uses these reports to inform and make prioritization decisions of assets that need to be replaced.

§673.27 SAFETY ASSURANCE

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

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

This section outlines the means and methods that Metro uses to ensure Safety Assurance in each core area.

§673.27 (b) Safety Performance Monitoring and Measurement

Metro has several programs to monitor its bus and rail systems for safety and regulatory compliance. These programs include the following:

RAIL MODE

FIELD OBSERVATION AND FEEDBACK (FOF)

The FOF is a behavior-based safety process that creates a safety partnership between management and employees/contractors that focuses on evaluating employees performing tasks and their actions. Moreover, the FOF process is the means for management to monitor and document the safety performance of personnel working in their work environment.

An FOF session must include a "safety contact(s)." A safety contact is an observation of a safe or unsafe act or behavior of an employee followed by dialogue addressing the situation. Observations focus on constructively and positively reinforcing safe acts, gaining employee commitment to stop unsafe acts and encouraging two-way communication about safety-related concerns. Life threatening and unsafe behaviors observed are addressed and acted on immediately.

With respect to Wayside Maintenance Employees, Supervisors are responsible for verifying compliance with established rules and procedures.

EFFICIENCY TESTING / PERFORMANCE EVALUATIONS

The head of the Rail Transportation Instruction department is responsible for developing the Rule Book, managing changes to the Rule Book and overseeing efficiency testing to determine the knowledge and application of operating rules and procedures. Rules and procedures that affect safety are contained in the Metro Rail Book of Operating Rules and Procedures. Compliance with these rules and procedures is routinely checked as part of line rides and performance evaluations.

Each month, the Rail Transportation Instruction (RTI) staff issues 2 rules compliance tests, based on the rulebook, that must be completed by Division Management. The tests evaluate operators' knowledge and conformance with the selected rules. A minimum of 20 operators per line, per month are randomly selected by Supervisors on the AM and PM shift (10 per

shift) to evaluate compliance with the rules.

VIDEO BASED ENFORCEMENT AND MONITORING PROGRAM

Metro has installed a video-based monitoring system in the operating cabs of each rail car. Metro uses this video-based system to supplement the random monitoring and enforcement of its operating rules, including rules and policies governing the use of electronic devices. Operations staff utilizes the video-based system to download and observe 10% of the operators on each line per quarter to determine compliance with the CPUC General Order 172 series, and includes, as part of the 10%, incidents involving the following:

- a derailment
- a collision
- a complaint or observation of an alleged violation of the GO 172 series

Records of the observations from this video-based program are maintained for a period of three (3) years. Video recordings only for instances of any violation of rules/policies and the above described three instances are maintained. These videos are made available to the CPUC staff upon request but are maintained until the last appeal of any litigation or disciplinary action is complete.

FACILITY INSPECTIONS

A safety inspection program is essential in order to reduce unsafe conditions that may expose staff, and visitors to incidents that could result in injury, illness and exposure or property/capital asset damage. It is the responsibility of each organizational level, down to the lowest applicable cost center, to ensure that appropriate, systematic safety inspections are conducted periodically.

Periodic Safety Inspections will be conducted at each operating facility by department management/division trained personnel to identify and document unsafe conditions, work rules or work practices inconsistent with Federal, State and Local government agencies.

Rail Communications and Facilities Maintenance performs inspections of the public rail facilities, such as rail stations, in accordance with their respective departments' maintenance plan.

In addition to public facility inspections, Division/Location Facility Inspections are conducted at each rail division on a monthly basis for both Transportation and Maintenance Departments utilizing the facility inspection checklist for their respective department type.

Each department's Facilities Inspection responsibilities include:

- Utilize checklists to periodically inspect work areas for unsafe and unhealthy conditions and report and correct conditions as appropriate

- Maintain inspection documentation records
- Track and take appropriate corrective action(s)
- Report unsafe conditions and failures, both physical and operational, to appropriate organizational units so the condition can be corrected and/or operational changes can be made
- Submit hazards and proposed system modifications resulting from inspections to the appropriate committees

INTERNAL SAFETY REVIEW

The PTASP Internal Safety Review (ISR) provides a comprehensive method of measuring effectiveness of the PTASP in achieving its objectives.

Under requirements of the CPUC GO 164 series, this review ensures that the state required elements of the PTASP are reviewed in an on-going manner and completed over a three-year cycle. The ISR is conducted on an annual basis and a schedule of the reviews is submitted to the CPUC staff prior to the start of such reviews, allowing for CPUC staff participation. A list of items to be reviewed is developed at least a month in advance. This review includes checklists that address both quantitative and qualitative aspects of performance.

Each department is responsible for PTASP compliance and for reporting deviations to the safety department, which has overall verification responsibility. The ISR process will provide a means of documenting whether organizational units are fulfilling their PTASP responsibilities.

The safety department is responsible for establishing a review team and for conducting the ISR. Reviewers who conduct the reviews are independent from the first line of supervision responsible for the activity being reviewed.

Review Reporting

The safety department submits the ISR Report directly to the Chief Executive Officer for review. This report includes an evaluation of the adequacy and effectiveness of the PTASP with findings, conclusions, and any necessary recommendations/corrective actions. After the Chief Executive Officer reviews the report, it is submitted to the CPUC for approval and then to the responsible departments for implementation, if applicable, of the corrective action plans described in the report.

Follow-Up/Action Plans

Departments and other organizational units are responsible for implementing their respective approved recommendations and action plans. Any department or other organizational unit that foresees or encounters a problem in completing implementation within the established time frame shall inform the safety department head.

LINE RIDES

Line rides provide an opportunity for one-on-one interaction between the Operator and Instruction staff. Line rides allow for firsthand observation of an Operator's habits and result in immediate verbal and written feedback. The purpose is to uncover and point out unsafe practices, as well as to give positive reinforcement for safe operating practices. Line rides can occur as a reactive measure (post-accident rides or rides initiated in response to customer complaints or documented violations of safety rules), or proactively, such as when the Operator is learning a new rail line or receiving other types of instruction.

BUS MODE

FIELD OBSERVATION AND FEEDBACK (FOF)

The FOF is a behavior-based safety process that creates a safety partnership between management and employees/contractors that focuses on evaluating employees performing tasks and their actions. Moreover, the FOF process is the means for management to monitor and document the safety performance of personnel working in their work environment.

An FOF session must include a "safety contact(s)." A safety contact is an observation of a safe or unsafe act or behavior of an employee followed by dialogue addressing the situation. Observations focus on constructively and positively reinforcing safe acts, gaining employee commitment to stop unsafe acts and encouraging two-way communication about safety-related concerns. Life threatening and unsafe behaviors observed are addressed and acted on immediately.

FACILITY INSPECTIONS

A safety inspection program is essential in order to reduce unsafe conditions that may expose staff, and visitors to incidents that could result in injury, illness and exposure or property/capital asset damage. It is the responsibility of each organizational level, down to the lowest applicable cost center, to ensure that appropriate, systematic safety inspections are conducted periodically.

Periodic Safety Inspections will be conducted at each operating facility by department management/division trained personnel to identify and document unsafe conditions, work rules or work practices inconsistent with Federal, State and Local government agencies.

Facility Inspections are conducted at each bus division on a monthly basis for both Transportation and Maintenance Departments.

SMART DRIVE VIDEO MONITORING

The Smart Drive is g-force based video monitoring utility. When an event on a bus reaches a threshold, the Smart Drive system records video footage. There are four types of events that are triggered and recorded by the SmartRecorder for use in the Measured Safety Program: Erratic, Shock, Speeding, and Manual. Erratic Events are characterized as Moving Events.

They are triggered by sustained forces from multiple directions (front/back, left/right, and up/down) over relatively long periods of time (typically between 0.25 and 1.5 seconds) as measured by an accelerometer in the SmartRecorder. Erratic Events capture risky driving maneuvers such as hard braking, acceleration, turning, swerving, speed bumps, dips in the road, etc. Shock Events are also characterized as Moving Events. They are triggered by sudden changes in force in any direction as measured by an accelerometer in the SmartRecorder. Shock Events have a higher likelihood of recording Collisions, but they can also be triggered by other actions that involve sudden changes in forces such as when a vehicle hits a pothole or a bump at high speed.
Speeding Events are characterized as Moving Events. They are triggered when the vehicle speed exceeds a specified threshold. For example, if the threshold is set for 70 mph then the SmartRecorder will record a Speeding Event when the vehicle speed exceeds 70 mph. To balance the number of Speeding Events that may be recorded at any given time, the SmartRecorder will only record one Speeding Event within a 30-minute timeframe.
Unlike the other three event types, Manual Events are not Moving Events. They are triggered when the driver or other occupant of the vehicle presses the manual trigger button on the SmartRecorder or on the keypad. Manual Events enable Operators to record Videos which contain actions of interest that are not necessarily related to risky driving.

Operations Staff reviews SmartDrive events daily to ensure timely coaching, retraining or discipline for unsafe acts. Coachable events are placed in the Coaching Queue. Additionally, Supervisors review manually-triggered events when Operators submit written notification. Coachable events belonging to the Maintenance Department are brought to the attention of the Maintenance Manager for coaching, retraining, and/or discipline.

LINE RIDES

Line rides provide an opportunity for one-on-one interaction between the Operator and Instruction staff. Line rides allow for firsthand observation of an Operator's driving habits and result in immediate verbal and written feedback. The aim is to uncover and point out unsafe practices, as well as to give positive reinforcement of safe driving practices. Line rides can occur as a reactive measure (post-accident rides or rides initiated in response to customer complaints or documented violations of safety rules), or proactively, such as when the Operator is learning a new bus line or receiving other types of instruction.

§673.27(b)(2) Safety Risk Mitigation Monitoring Process

Metro monitors its operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended. Metro also reviews pre-mitigation and post-mitigation trend data captured in various Metro electronic systems to determine the effectiveness of the safety interventions.
For example, Metro has been tracking the effectiveness of the following projects:

- Ped-gate/swing-gate project (monitored through Blue Line Quarterly Report)
- Left turn gate project (monitored through Blue Line Quarterly Report)
- In-pavement street lights on Gold Line East Side Extension
- Bar signals interfaced with interlocking signals on the Gold Line
- Photo Enforcement
- Bus turn alert system
- SMARTDRIVE
- 2-section barriers to deter assaults on bus operators
- Video cameras and closed-circuit video monitors that show passengers boarding and in the seating areas of the bus

§673.27(b)(3) Accident Notification, Investigation, and Reporting

Metro conducts investigations of accidents to identify causal factors through Accident Investigation Procedures (AIP). The AIP are outlined in Appendix F for the rail mode, and Appendix G for the bus mode. If there is a difference of opinion as to rail accident investigation findings, this will be resolved through CPUC established procedures.

RAIL MODE

The safety department submits a Monthly Service Record, Accident, Hazard, and Corrective Action Summary Report (Form V) to the CPUC, within 30 calendar days after the last day of the month in which the accident occurred. Moreover, it also submits accident data to the Federal Transit Administration via the National Transit Database (NTD).

BUS MODE

The safety department submits monthly accident data to the Federal Transit Administration via the National Transit Database (NTD).

§673.27(b)(4) Internal Safety Reporting Program Monitoring

Metro monitors information reported through Safety Data Acquisition and Analysis, its internal safety reporting program, SAFE-7, the drug and alcohol abuse program, as well as through various committees described below.

A. Safety Data Acquisition and Analysis

This function involves collecting and analyzing incident data in order to identify trends, mitigate any associated hazards and prevent recurrence of incidents on the bus and rail system. For example, the safety department compiles the Summary of Metro Blue Line Train/Vehicle and Train/Pedestrian Accidents – this quarterly report summarizes the contributing factors, direction of travel of the train, and the location where accidents have occurred on the Blue Line. The safety department also reviews the bus and rail accident statistics and determines the types of mitigating measures, if any, to be implemented. Often, incidents are the result of unsafe behaviors of third parties, which are beyond the control of Metro, and for which mitigations are not feasible. Based on the collection of data and analysis of the data, the safety department has, over a number of years, implemented several enhancements on its bus and rail system. Some of these enhancements include four quadrant gates, active train warning signs for motorists and pedestrians, photo enforcement system, in-pavement warning lights, left turn gates in street running, pedestrian gates/swing gates, bus operator barriers, bus monitors on buses, pilot programs of bus audible and visual alerts to mitigate bus/auto and bus/pedestrian collisions, on-board video based enforcement system (SmartDrive), and in-cab camera system. Safety data is exchanged with other transit systems and is provided to external agencies as required. Because of the significantly lower number of accidents on the Metro Gold Line, Metro Expo Line, Metro Green Line and Metro Red Line, with the latter two lines experiencing mostly suicide type accidents, no meaningful trend can be established; hence, similar quarterly reports as the one for the MBL, are not helpful and, therefore, not developed. However, Corporate Safety maintains a data base of accidents that occur on these lines and based on trends, implements enhancements as warranted.

B. SAFE-7 Reporting

As outlined in our Hazard/Near-Miss incident Reporting Process, SAFE-7 is Metro's repository for reporting operational safety issues. Refer to the Hazard/Near-Miss incident Reporting Process in §673.25(b) for more detailed information on how this element is achieved.

C. Drug and Alcohol Abuse Program

The Human Resources Department (HR) administers Metro's policy titled Drug and Alcohol Free Work Environment. HR ensures that the policy is compliant with applicable regulations, is updated periodically, and is disseminated to all employees. HR also monitors training of newly hired safety-sensitive employees, ensures that informational materials on the dangers of substance abuse and the Employee Assistance Program are readily available to all Metro employees.

In addition, HR staff takes the lead in training supervisors to fulfill their responsibilities as related to the policy. The guidelines, procedures, and programs set forth in this policy comply with all applicable state and federal regulations governing workplace anti-drug use and alcohol misuse in the transportation industry. 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)
- California Public Utilities Commission (CPUC) General Order 143 Series

Functions of the Human Resources Department include:

- Develop and administer Medical Standards for each position
- Ensure that successful candidates for positions are capable of safely performing the tasks of these positions on a repetitive basis
- Administer Metro's medical desk and Metro drug and alcohol policy
- Oversee medical examinations and testing and the retention of related records

Each Metro Departments' role in this function is to:

- Comply with procedures established by the Human Resources Department for testing and disciplining employees in accordance with Alcohol and Drug Free Work Environment Policy
- Deter and detect employees' use of illegal drugs and misuse of alcohol
- Discipline employees who violate the Policy, up to and including termination

D. COMMITTEES

There are various committees that coordinate Metro's SMS activities:

Bus Change and Material Review Committee (BCMRC)

The purpose of this committee is to provide consistency and uniformity to the changes made to, or material used for Metro's Bus Fleet. The committee is responsible for ensuring that changes to the buses or material are safe, economical, practical and comply with Metro's policies and procedures. The proposed modifications are submitted to the Vehicle Technology department. This department then distributes the proposed changes to the BCMRC.

Chemical Standards Committee (CSC)- This committee shares information and provides oversight for the qualification and introduction of new chemical commodities and the disqualification of existing chemicals. The committee jointly reviews all requests to set up chemical products to ensure compliance with Metro's requirements. The committee also reviews the current inventory catalog to confirm the chemical requested does not already exist in the Metro inventory under another name.

Chemical Standards Committee Functions:

- Inventory Control (Review new set-up or request/Committee Chairperson)

- Procurement (Vendor request and purchases of new products)
- Quality Assurance (New product testing/Product Complaints)
- Corporate Safety (Reviews new product SDS for Safety Compliance)
- Maintenance Bus/Rail (Users/Testing)
- General Services Bus, Rail, Gateway (Users/Testing)
- Material Planning (Set order points for Divisions)
- Environmental Compliance (Environmental Impact and Guidelines)

Fire/Life Safety Committee (FLSC) The FLSC evaluates and resolves fire and life safety issues on Metro. It verifies that system designs, operations, and modifications meet fire and life safety requirements, such as NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems. In this capacity, the FLSC coordinates with other Metro departments and with other fire departments and other emergency response agencies for familiarization with Metro emergency procedures.

The FLSC evaluates issues against FLSC design criteria, verifies compliance with the criteria, and evaluates variances or deviations from the criteria via a Request for Special Consideration form. The FLSC also facilitates the issuance of the certificate of occupancy for new facilities.

Staff from the safety department chairs the FLSC which is comprised of representatives from the Los Angeles City Fire Department, Operations departments, and the CPUC . Some of the typical functions of the FLSC include:

- Develop Fire/Life Safety Criteria for Metro and monitor compliance with fire/life safety requirements
- Serve as liaison between Metro and fire departments and other emergency response agencies
- Verify that fire departments and other emergency response agencies are familiar with Metro 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 municipal and county 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 Metro and other transit agency incidents for lessons learned.
- Provide support to Rail Operations as needed.

Local Safety Committee (LSC) - The formation of LSCs at the Bus and Rail Operating facilities gives employees and division management a forum for exchanging information related to safety issues, programs, policies, and practices. Each Metro Division

has formed a committee, with the head of operations or maintenance chairing the effort. The LSC responsibilities include the following:

- Meet monthly to evaluate and resolve any identified safety hazards, near misses, and track action items
- Administer safety programs for department employees, facilities, equipment, and Operations
- Review investigation of injuries/incidents and near misses, and make recommendations to mitigate them

Operations Safety Steering Committee (OSSC) –The committee initiates and implements Operations-wide Safety Programs to drive improved performance and to identify and resolve issues that prevent or hinder improved safety success. The Committee is chaired by the head of the Risk, Safety, & Asset Management department and includes Senior Management of the bus and rail Transportation and Maintenance departments. Central to the discussion are key performance indicators and projects and programs to continuously improve safety performance. The committee meets quarterly.

Safety Certification Review Team (SCRT) - The SCRT is a multi-disciplinary team that is formed for each Major Rail Capital Project or Line Extension. Its purpose is to review project compliance to the Safety Certification program, in compliance with CPUC General Order 164 Series. The objective of the SCRT is to provide guidance and oversight to the safety certification program so that the project can be opened without any hazard to passengers and employees. Members are selected to serve on an as-needed basis from various operating departments, the Designer, Construction Contractor, or specialty consultants. Typical activities include review of in-progress verification checklists, field inspections, or other document reviews. A representative from the safety department or designee chairs this Team.

System Modification Review Committee (SMRC) - The purpose of this committee is to review and comment on any proposed changes or modifications to the Metro Rail Operating System(s)/Facilities prior to implementation, and to evaluate whether any new hazards are posed by the proposed modifications. The proposed modifications are submitted to the Program Control department. This department then distributes the proposed changes to the SMRC for review and comments via email. Meetings are held only if any comments cannot be resolved via the email process.

§673.27(c) Management of Change

Metro's Program Control, Vehicle Technology, and Rail Vehicle Engineering departments facilitate changes to rail and bus operations through the System Modification and Configuration Management Process.

System Modification
Changes to Metro systems and subsystems must not be made without first determining how the change might affect the safety of the system, or of any other system. The proposed modification must be evaluated for its potential to create additional hazards or to reduce the effectiveness of existing hazard controls. Metro has implemented a procedure, Operations Configuration Change Control, found in the CF15 procedure that establishes a process to ensure notification and review of proposed changes.

Individual departments must submit proposed system changes involving facilities, equipment/software or other physical modifications to Program Control, Vehicle Technology, or Rail Vehicle Engineering in accordance with procedures established in CF15.

Each Metro Departments' role in this function is to:

- Incorporate safety into proposed modifications of Metro transit systems
- Meet the safety requirements established for all purchases of equipment and supplies including its proposed storage, transfer, use, record keeping, and disposal
- Submit proposed system modifications to the respective party for document control
- Carry out assigned system modification tasks
- Evaluate proposed system and subsystem modifications from a safety perspective

Configuration Management
Configuration Management is a process which attempts to ensure that all changes to facilities, equipment, systems, design elements, etc., are updated to reflect the most current configuration, accurately and completely.

Program Control, Vehicle Technology, and Rail Vehicle Engineering is responsible for distributing proposed physical modifications to the appropriate Operations, Maintenance, Engineering, safety department, and other necessary units for review and comments and for processing the approval of these configuration modifications. The appropriate Engineering department head is responsible for updating the as-built configuration drawings and notifying the Program Control Department when they are completed.

Functions of the Program Control, Vehicle Technology, and Rail Vehicle Engineering departments include:

- Maintain a computer database log of proposed changes.
- Submit the change proposal to the Operations, Maintenance, and Safety Department and others for review and comments. The Safety Department will review the proposed change to determine any negative safety impacts in accordance with the Safety Risk Management Process, described in §673.25(a).
- Coordinate resolution of all comments on the proposed changes
- Process change control documents
- Maintain Change Request/Order files; action items; general drawing and change status reports

- Provide updated drawings to affected Operations (field) Technical Libraries
- Respond to requests for latest drawing configuration, changes pending on drawings, and the status of each change in the system

Safety Certification Process

The Safety Certification Program verifies that safety-related requirements are incorporated into rail transit projects. The goal is to verify that safety standards are met or exceeded in the design, construction and start-up of these projects. This process also verifies that safety concerns and hazards are adequately addressed.

Projects may include new rail systems or extensions, the acquisition and integration of new vehicles and safety critical technologies into existing service or major safety critical redesign projects, excluding functionally and technologically similar replacements.

Metro certifies its rail transit projects to the CPUC. The CPUC requirements for safety certification are identified in General Order 164 Series, which Metro adheres to.

The Safety Certification Review Team (SCRT) is responsible for overseeing the activities of the Safety Certification Plan. The goals of the Safety Certification Program are to:

- Verify that acceptable safety levels are met or exceeded in all Metro rail transit projects
- Document the verification of safety standards
- Provide a consistent manner to certify projects

Bus acceptance process

Metro's Bus Warranty Department manages the acceptance of all new buses. Through their acceptance program, buses are inspected and accepted into the Metro 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.

§673.27(d) Continuous Improvement

Metro has established multiple processes to assess its safety performance and facilitate continuous improvement. The programs include but are not limited to:

a. Quarterly OSSC Meeting (Safety and Operations)- See Section 673.27(b)(4)D.
b. Outside Auditing agencies (Systemwide)- Metro is audited by multiple outside agencies, including Federal, State, and contracted agencies which serve as a mechanism to implement enhancements for continuous improvement.

c. Internal Safety Reviews- Metro Corporate Safety conducts internal reviews of elements included in this PTASP to ensure that responsible departments follow safety expectations of this PTASP. When these reviews include recommendations, a corrective action plan is initiated and seen through to completion in accordance with GO 164 series.
d. RAP Sessions-Are meetings between Division Management, and staff to discuss concerns that employees may be experiencing in the field, and in the work process. Employees can use their experiences and suggest solutions to issues that they encounter. Employees also get updates on Division activity that they may not normally receive in the performance of their usual duties.

Metro has various levels for continuous improvement, specifically in accordance with 49 CFR 673, the Internal Safety Review and CPUC's Triennial Audit may generate recommendations that are approved and directed by the Chief Executive Officer.

In addition to the above processes, Metro personnel can make suggestions to any Department or group where they may see an area of needed safety improvement. This may be coordinated through discussion with various department heads, at Local Safety Committee Meetings, etc.

§673.27(d)(2) Through the Continuous Improvement Processes described above, Metro is then able to develop and carry out a plan to address the identified safety deficiencies by:

i. Prioritizing identified deficiencies
ii. Creating Strategic Initiatives to overcome such deficiencies
iii. Re-evaluating progress on our improvement measures through our SMS program.

If a safety recommendation made to improve a program, process, or safety deficiency is not implemented, the department(s) involved shall provide a written justification to the safety department.

§673.29 SAFETY PROMOTION

The promotion of safety is accomplished through Metro's Safety Training program and other means of safety communication described below. Metro fosters active, open and ongoing communication through various outlets explained in this section. Employees can communicate to management about issues as they arise, and in turn, management has the opportunity to provide training, messaging, and use other communication tools to promote a safety culture. Through open dialogue, hazards can be identified, and understood so employees know what risks they may encounter, and what Metro is doing to eliminate or mitigate the risk.

§673.29(a) Safety Training program

All Metro personnel directly connected with the operation of buses or trains will be required to undergo certification and re-certification training, as necessary.

Each Metro Departments' role in this function is to:

- Maintain each of their employees' training, certification, and recertification records.
- Train department employees in elements of the PTASP and safety programs that have relevance to their positions.
- Document the training in accordance with their department's practices. This may be through electronic database, or through hard copy files.
- Develop programs to ensure training adequately communicates the specific hazards employees may be exposed to; implement appropriate hazard control methods; provide warnings and restrictions; develop safety rules and procedures; and practice emergency procedures including those related to response, communication, and evacuation. Employees must receive required training and/or certification/re-certification as it pertains to their discipline.
- Distribute and display safety information, bulletins, notices, rule changes, posters, etc. in a manner that effectively communicates the information to employees.
- Monitor and document compliance with the training through FOFs or efficiency tests.

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

Rail Specific Safety Training:

Safety Training is generally required for all persons working on the Metro Rail System. In certain cases, persons may conduct work on the Metro rail system without attending safety training, provided they are escorted by an individual who is currently certified in roadway worker protection training, consistent with GO 175 Series. SOP #55 Wayside Worker Protection outlines on-track protection requirements for Roadway Workers. The purpose of safety 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 as well as the riding public.

Rail Transportation Instruction provides the training and refresher training required to employees, contractors, subcontractors, law enforcement and fire services personnel as identified in Appendix H. They maintain these documents in accordance with their department's practices.

Upon completion of safety training, employees are issued a picture identification badge. The badge is to be worn or be in the possession of persons at all times, while accessing Metro facilities or systems. Any person not wearing or having a badge, is subject to being escorted to a safe area.

The Rail Transportation Instruction (RTI) department is responsible for developing operating rules and Standard Operating Procedures (SOPs), and for managing the process of modifying rules and SOPs. Rules and procedures are reviewed periodically and when new rail lines or extensions are opened or when accidents or incidents indicate a possible rule modification or clarification is necessary. Any rail employee may submit a request to his or her supervisor for a new or revised rule/procedure at any time. The supervisor or manager, in turn will forward the request to the RTI department. The RTI department will evaluate the proposal and distribute all the Rules/Standard Operating Procedures that need to be revised to the affected departments including the safety department for review and comments, before implementing the revisions.

URGENT REQUESTS FOR A NEW OR REVISED RULE/PROCEDURE - These may be sent by any employee to Rail Transportation Instruction, for immediate action. These may be sent verbally, with written documentation to follow. The above process may be bypassed to accommodate the urgency, to provide a temporary new or revised Rule/Procedure if approved by the department head of Rail Transportation. Changes to rail operating rules and procedures are submitted by the Safety department to the CPUC in accordance with CPUC GO 143 Series.

All METRO Rail Departments' role in this function is to:

- Comply with rules/procedures and operating techniques to ensure safety requirements are met.
- Evaluate proposed rule and/or procedure changes from a safety perspective.
- Ensure that rules and procedures are developed, maintained and followed.
- Document results of compliance checks.
- Notify the appropriate department head whenever deviations from established procedures occur or are needed.

<u>Rail Vehicle Maintenance Training</u>
Safety training records are maintained between the local Rail Vehicle Maintenance staff's work location and the Metro Training Tracking System. Topics include applicable OSHA training required based upon hazards that maintenance personnel may encounter. Examples of training include: Fall Protection Training, Bloodborne Pathogen, and Personal Protective Equipment.

<u>Rail Vehicle Maintenance Rules and Procedures</u>
The two primary documents containing maintenance rules and procedures are the Maintenance Safety Handbook and the Rail Fleet Services Rulebook and Standard Operating Procedures. The Rail Fleet Services Instruction and Rail Vehicle Engineering units have

approval authority over maintenance procedure manuals. In addition, Quality Assurance and Vehicle Acquisition issue Informational Memos as needed to inform organizational units of various equipment related issues and changes in procedures and work practices. The Maintenance Safety Handbook highlights the major safety topics and top safety work practices in rail vehicle maintenance.

Safety Oversight Training

Consistent with 49 CFR 672, all Metro personnel directly responsible for safety oversight of Metro Rail Operations have completed training specified in Appendix A of 672 Public Transportation Safety Certification Training Program. Additionally, Metro's CSO will also complete this training within 3 years of onboarding with Metro.

Bus Specific Safety Training:

Operations Central Instruction (OCI) department is responsible for developing operating rules and Standard Operating Procedures (SOP's), and for managing the process of modifying rules and SOP's for Bus Operations. Any bus employee may submit a request to his or her supervisor for a new or revised rule/procedure at any time. The supervisor or manager, in turn will forward the request to OCI. OCI will evaluate the proposal and distribute all the Rules/Standard Operating Procedures that need to be revised to the affected departments including the safety department for review and comments, before implementing the revisions.

Rules and procedures are reviewed periodically and when accidents or incidents indicate a possible rule or procedural contribution. In addition, any bus system employee can propose a rule or procedure modification.

Following the modification, the unit overseeing the process is responsible for disseminating rule and procedure modifications to appropriate parties.

Urgent changes are made by department heads having control over specific rules and procedures by means of bulletins, notices, or orders. The development of site-specific rules and procedures must be controlled. In addition, site specific rules and procedures must fulfill existing safety requirements; not create new hazards or reduce the effectiveness of existing safety controls; and not increase the risk to individuals, equipment, property, or the environment.

Bus Transportation Rules and Procedures

The *Operator's Rulebook and Standard Operating Procedures* is re-evaluated as warranted. Bulletins, Operations Notices, and memoranda are also periodically reviewed. Urgent changes to Bus Operator rules/procedures can be made by Operations Central Instruction. A General Notice or Operations Notice is posted on division bulletin boards whenever there is a change to the Operator's Rulebook and Standard Operating Procedures. Operators are required to check the board for notices. If a major change is made, Operators receive additional training.

Bus Maintenance Rules and Procedures

The two primary documents containing maintenance rules and procedures are the *Maintenance Guide Book* and the *Revenue Service Bus Maintenance Plan*. The Maintenance Instruction unit has approval authority over maintenance procedure manuals. In addition, Quality Assurance and Vehicle Acquisition issue Informational Memos as needed to inform organizational units of various equipment related issues and changes in procedures and work practices. The *Maintenance Safety Handbook* highlights the major safety topics and top safety work practices in bus maintenance.

There are formal training programs for operators and employees involved in maintenance activities. These include training classes, training manuals, and lesson plans. Testing is conducted as necessary to ensure training effectiveness, and all safety training is documented.

Metro utilizes safety training programs as a means of informing employees about hazards associated with their jobs and the appropriate methods for controlling these hazards. The safety training efforts of Metro fall into three main types of training: 1) Initial, 2) Periodic, and 3) Retraining. Training mechanisms include classroom, written and video communications, computer-based training, field exercises, and drills.

Bus Operator Training

OCI is responsible for training new Bus Operators in defensive driving, rules pertaining to safe vehicle operation, pre-trip and pre-pullout inspections, emergency procedures, and injury and illness prevention. This group also performs re-training following traffic accidents, occupational injuries, and as otherwise warranted. A list of required Bus personnel training can be found in Appendix I.

Verification of Transit Training

Operators are required to receive 8 hours of training per year under the Verification of Transit Training Program. This training is conducted at the operating divisions by the Division Instruction staff and is described in the Verification of Transit Training manual maintained by Operations Central Instruction. During the license renewal year, each Operator must complete 8 hours of classroom training; in all other years the training may consist of a combination of classroom, hands-on, and behind-the-wheel training.

Operator's Training Documentation

Training records are maintained at the Bus Operator's work location and follow the operator whenever transferred to a new division.

Bus Maintenance Training

Safety training records are maintained between the local Bus Maintenance staff's work location and Central Maintenance staff. Topics include applicable OSHA training required based upon hazards that maintenance personnel may encounter. Examples of training may include, Fall Protection Training, Bloodborne Pathogen, and Personal Protective Equipment.

Bus System Safety Orientation

Safety Orientation is required for all persons, outside of Bus Operations, such as contractors and consultants. This orientation shall be conducted by Division Maintenance staff prior to the commencement of work. The purpose of safety training is:

- To identify the bus system practices and standards
- To ensure safe operation of the bus system
- To identify hazards and the procedures necessary to ensure the safety of all persons working on or about the bus systems

§673.29(b) Safety Communication

Metro believes in the importance of effective communication to build a more robust safety culture. Training is merely one example of communication. The following methods are the various ways in which Metro communicates safety and safety performance information with employees throughout Metro. In addition to regular safety messages, many of these communication methods convey information on hazards and safety risks relevant to employees' roles and responsibilities.

Safety Communication Methods:

1. New Hire Orientation On-Boarding Safety Presentation- All new Metro employees undergo new hire orientation which includes a safety training presentation.
2. Safety Training- Bus and Rail Divisions conduct safety training for their employees based on the hazards that they will encounter while performing assigned tasks.
3. Toolbox Safety Talks- Employees are provided relevant safety topics talking about safety issues that may affect their job duties.
4. Craft Specific Training- Each department conducts training pertinent to the tasks that they will perform, such as, hi-rail operations for wayside workers, grade crossing maintenance procedures, customer service training.
5. Sign-For Documentation- When there is an update to rules or SOPs, bus and rail operators are given the information upon sign-in to review, and sign that they have received copies. In addition, when special notices, or memos are distributed, sign-for documentation aids in ensuring that all affected employees have received the communication.
6. Safety TVs- These TVs are located at all divisions. They typically have rolling messages, videos, or power point presentations that remind employees of various hazards they may encounter or special procedures they need to know in order to perform their duties.
7. Safety Banners- Each division has the ability to make safety unique to their environment. Many divisions have enlisted the use of safety banners to count the number of days without an accident, or injury that the division has accomplished. This particular safety communication can help with morale, especially when tied to a reward of some kind (i.e. BBQ for 180 days of no injuries).

8. Safety Bulletin Boards-Every bus and rail division has Safety bulletin boards. These boards will contain applicable safety regulations, safety policies, or key performance indicators information. These boards are typically in a conspicuous location where all employees frequent, such as a lunch or break room.
9. SAFE-7/SAFE-15 Process- The SAFE-7 process is outlined in 673.25 Safety Risk Management and is one of the main pillars of safety communication that employees have to identify hazards to management.
10. Local Safety Committee (LSC) Meetings- LSCs give employees and division management a forum for exchanging information related to safety issues, programs, policies, and practices. Each Rail Division has formed a committee, with the manager of operations or maintenance chairing the effort.
11. RAP Sessions-Rap sessions are a meeting between Division Management, and staff to discuss issues that employees are having in the field, and in the work process. Employees can use their experiences and suggest solutions to issues that they encounter. Employees also get updates on Division activity that they may not normally receive in the performance of their usual duties.

Safety Requirements:

Employees are Metro's number one asset. Making safety Metro's first concern will positively affect employees' health and well-being, our working and home lives, our efficiency and ability to get the job done and the quality of our service. The safety department is responsible for compliance with CPUC and Occupational Safety and Health Administration (OSHA) requirements. OSHA requires developing and implementing health and safety programs to comply with federal, state, and local regulatory requirements (e.g., California Code of Regulations). The following are some examples of programs designed to anticipate, recognize, evaluate and control hazards in the workplace and the environment that affect the health and safety of employees:

- Asbestos Management
- Blood borne Pathogens
- Confined Spaces
- Hazard Communication
- Ergonomics
- Lead Management
- Hearing Conservation
- Respiratory Protection
- Personal Protective Equipment (PPE)
- *Compressed Natural Gas (CNG)
- *System-wide Hazardous Materials Emergency Response

* Not covered under OSHA Title 8 Employee Safety regulations.

Hazardous Materials Program
All Metro activities must comply with applicable federal (Title 3, Section 313), state, and local environmental protection laws. Procedures have been established in order to control hazards associated with procurement, storage, transfer, use, and disposal of hazardous substances. Methods used in this process include product and substance evaluations, procurement procedures, monitoring, testing, inspections, and training. These procedures also address record keeping and reporting requirements. Hazardous Material Business plans are developed for each facility and must comply with Code of Federal Regulations Title 40, Part 372.

The safety department develops and implements the Occupational Environmental Health & Safety (OEHS) Plans & Programs. In particular, they assure that the program complies with federal, state, and local regulatory requirements. The Hazard Communication Program (one of the Occupational Environmental Health & Safety Plans and Programs) has been designed to help maintain a healthy work environment by increasing employee awareness of workplace chemicals and their potential health effects, safe work practices and emergency procedures. This program affects all departments that buy, store, handle and/or use hazardous substances.

The safety department has the following role:

- Advise all departments within Metro, on a need to know basis, of all mandated environmental and safety rules and regulations as they pertain to operations.
- Conduct Hazard Communication Program training classes. All employees who work with chemicals are required to attend this training class.

The Quality Assurance Department has the following role:

- Monitor the collection and disposal of used oils, waste antifreeze, waste fuel, and waste water clarifier sludge to affect safe handling and minimize employee exposure to potentially hazardous and toxic by-products in the waste streams.
- Hazardous waste disposal.
- Universal waste disposal
- Perform monthly environmental compliance review with the Hazardous Material coordinators of each facility.

Track Allocation/Work Permit Process
Prior to performing work on Metro's right-of-way, all contractor companies are required to attend the Track Allocation meeting, where approval for the work proposed to be conducted must be attained. Track Allocation determines if the work the contractor or employee proposes to perform necessitates any restrictions, and/or flagging, and/or reduced train speed. Regardless of whether the work is to be performed during revenue or non-revenue hours, all contractors or employees must follow the requirements of the Track Allocation Procedures administered by Rail Operations.

CPUC Safety Requirements
In addition to the above safety requirements, Metro rail employees are governed by various CPUC General Order requirements. The safety elements that are part of this PTASP are found in Appendix J.

Each Metro Departments' role in this function is to:

- Ensure that employees know and follow safety requirements
- Meet the safety requirements established in Rules and Procedures
- Distribute and display safety information, bulletins, notices, rule changes, posters, etc. in a manner that effectively communicates the information to employees
- Report any individuals who appear to be working unsafely along the right of way to the Rail Operations Control Center

Corrective Action Plans
Metro complies with GO 164 series with regard to Corrective Action Plans (CAPs). The Safety department is responsible for monitoring the completion of CAPs that are identified and providing appropriate updates to CPUC Staff in regards to status of and closure of each CAP.

CAPs may be developed as a result of:

1. Accident investigations as outlined in Appendix F
2. Recommendations contained in CPUC triennial review reports
3. Recommendations identified in Metro's own Internal Safety Review
4. CPUC inspection findings identified through CPUC inspection reports
5. Hazards identified by Metro through the Risk Management Process, when appropriate

In the event an emergency corrective action is required to ensure immediate safety, Metro may initiate the corrective action prior to receiving CAP approval from CPUC staff.

Rail Contractors
To help support the execution of this PTASP and the principles of SMS, contractors who work in Metro Rail Facilities and/or Operational Right-of-Way are provided a copy of the Safety Management Policy Statement for distribution to their employees.

Rail Contractors must notify their Metro-Employee escort of any hazards they identify prior to or during their work assignment. If the contractor(s) are not being escorted, they must inform a Metro Supervisor or Metro contractor liaison who will follow the Safety Risk Management Process outlined in §673.25. This process is communicated through training discussed in §673.29(a) Safety Training program.

Additionally, Metro Rail contractors working on the Right-of-Way without an escort provide FOFs in the form of Efficiency and Compliance (E&C) on their employees as prescribed in their respective contracts.

Bus Contractors
Metro requires Bus contractors providing bus operations service to the public and maintenance on the buses to create their own Agency Safety Plan in accordance with 49 CFR 673. Metro contract management staff, in coordination with Bus Safety staff, will review compliance with each contractor on a triennial basis.

Zero Tolerance Policy
Metro's Zero Tolerance policy for electronic devices is referenced in Metro's OPS-1 policy.

Other regulatory references
Appendix K and Appendix L outline rule 673 and the National Public Transportation Safety Plan

Subpart D- Safety Plan Documentation and Recordkeeping

§673.31 Safety Plan Documentation

Metro will maintain documents that are included in whole, or by reference, that describe the programs, policies, and procedures used to carry out this PTASP as required by CPUC regulations. Compliance with the retention requirements is ensured through Metro's ISR Process.

PTASP documents will be made available upon request to the Federal Transit Administration or other Federal entity, or a State Safety Oversight Agency having jurisdiction. The safety department will be the primary point of contact when providing PTASP related information to external agencies.

Appendices

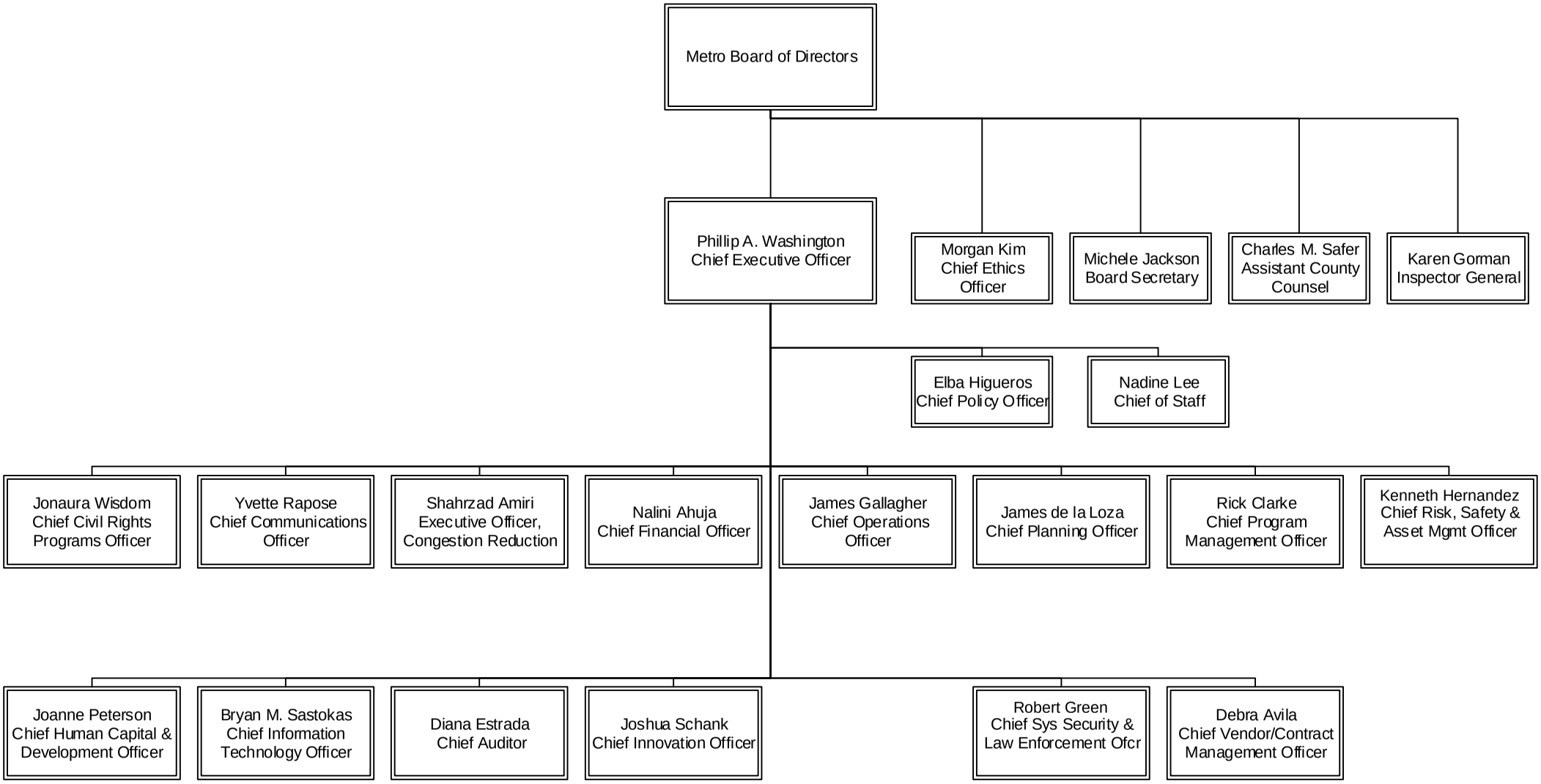
PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix A: Metro Organization Structure

Metro™

Version 1.0 issued July 1, 2020

Metro Organization Chart



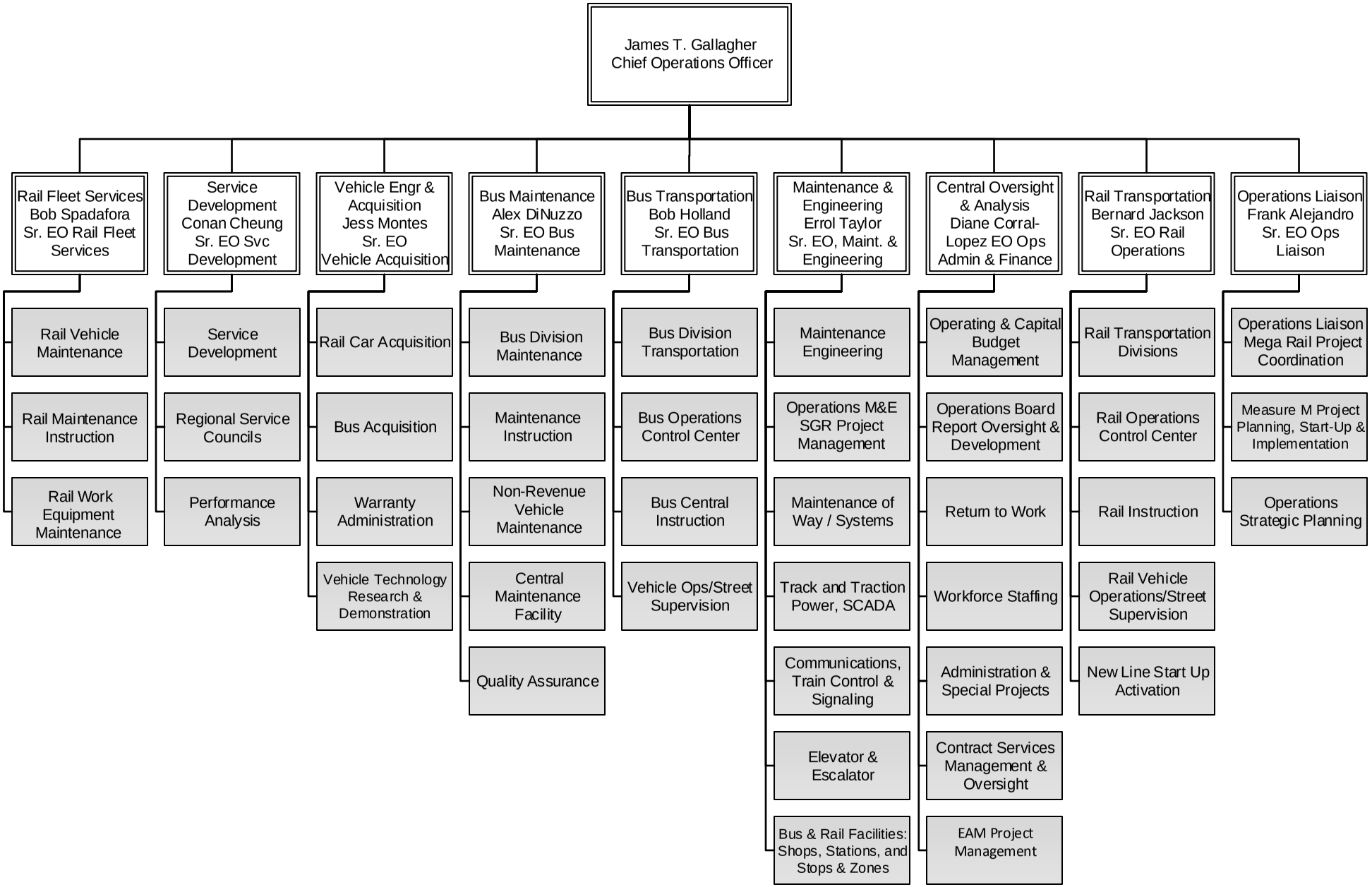
PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix B: Operations and Maintenance Organization Chart

Metro

Version 1.0 issued July 1, 2020

Operations



Operations
9950 Overview

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix C: System Description

Metro

Version 1.0 issued July 1, 2020

APPENDIX C: SYSTEM DESCRIPTION

C.1 LOS ANGELES TRANSIT HISTORY

After decades of air pollution and traffic congestion, Los Angeles County voters recognized the need for improved public transportation, and they passed Proposition A, the half-percent sales tax for public transit in 1980. Thirty-five percent of the funds from this tax were allotted to the design, construction, and operation of a rail transit network.

In 1990, county voters approved another half-percent sales tax increase to speed construction of rail and highway projects. Known as Proposition C, this measure sets aside 40% of its funds for improved bus and rail transit.

In 2008 and again in 2016 county voters approved additional tax increased with Measure R and Measure M. Measure R is a half-cent sales tax for Los Angeles County to finance new transportation projects and programs and accelerate those already in the pipeline. The tax took effect July 2009. Measure R alone does not fully fund all projects. The Measure contains an Expenditure Plan that identifies the projects to be funded and additional fund sources that will be used to complete the projects. Measure M added an additional permanent half-percent sales tax increase and was passed with approximately 70% of the vote showing Los Angeles County taxpayers commitment to expanding public transportation efforts in and around Southern California.

C.2 SCOPE OF TRANSIT SERVICES

Metro provides public transportation services in the urbanized area of Los Angeles County and in parts of adjacent counties. It has approximately 9,800 employees in over 27 different physical locations to assist in the operation both bus and rail systems.

C.3 ORGANIZATIONAL STRUCTURE

Metro's organization structure is displayed in Appendix A.

C.4 RAIL MODE DESCRIPTION

C.4.1 Metro Rail Lines at a Glance

Rail Line	Length of System	Number of Stations	Maximum Speed	Station Design/Line Description
Blue Line (Light Rail) Los Angeles to Long Beach July 1990	22 miles	22	55 mph	There are 21 center-platform stations, partially roofed, open air structures with seating and one station with side platforms in the subway. The alignment consists of two street running segments and one cab-signaling segment.
Red Line Segment 1 January 1993	4.4 miles	5	70 mph	Runs through downtown Los Angeles between Union Station and Westlake/ MacArthur Park. It Connects with commuter trains (Metrolink) at Union Station and Metro Blue Line at 7th Street/Metro Center Station
Red Line Segment 2A/Purple Line July 1996	2.1 miles	3	70 mph	Extended from Westlake/MacArthur to Wilshire/Western. Rebranded as Purple Line in August 2006
Red Line Segment 2B June 1999	4.6 miles	5	70 mph	Turns northward under Vermont Avenue from Wilshire/Vermont Station to Hollywood/Vine Station
Red Line Segment 3 June 2000	6.3 miles	3	70 mph	Extended from Hollywood/Vine Station to North Hollywood Station.

Rail Line	Length of System	Number of Stations	Maximum Speed	Station Design/Line Description
Green Line (Light Rail) Norwalk to Redondo Beach August 1995	20 miles	14	65 mph	Operates primarily in the center of the Glenn Anderson (I-105) Freeway with fourteen platforms at freeway level. Five stations are elevated center platforms on an aerial guideway on the portion of the line away from the freeway.
Gold Line (Light Rail) Los Angeles to Pasadena July 2003	13.7 miles	13	55 mph	The alignment consists of both cab signaling and street running segments. 12 stations are partially roofed, open air structures with seating and one station is partially underground. There are 5 side-platforms and 8 center-platforms.
Gold Line Eastside Extension (Light Rail) Los Angeles to East LA November 2009	6 miles	8	55 mph	Connects the Eastside to Downtown LA and Pasadena. There are 6 at-grade center-platforms and 2 subway stations. The 6 at-grade stations are partially roofed with open air structures and seating.
Gold Line Foothill Extension (Light Rail) Pasadena to Azusa (Phase 2A) March 2016	11 miles	6	55 mph	Phase 2A Foothill Extension Line connects Pasadena to Azusa. The alignment will consist of at-grade street running segments and cab-signaling segments.
Exposition Line (Phase 1) April 2012	8.6 miles	10	55 mph	Phase 1 connects Downtown to Culver City. The alignment consists of at-grade street running segments, cab-signaling segments, and aerial guide ways. EXPO Phase 1 has 10 stations, three of which are aerial.

Rail Line	Length of System	Number of Stations	Maximum Speed	Station Design/Line Description
Exposition Line (Phase 2) May 2016	6.6 miles	7	55 mph	Phase 2 of the Exposition Line connects Culver City with Santa Monica. The alignment consists of at-grade street running segments, cab-signaling segments, and 5 aerial guide ways.
Crenshaw July 2020	8.5 miles	8	65 mph	The Crenshaw Project will run between the Expo Line on Exposition Blvd. and the Metro Green Line. The alignment will consist of aerial, below-grade, and at grade stations.
Totals	113.8 miles	104		

Future Lines Under Construction	Length of System	Number of Stations	Maximum Speed	Station Design
Regional Connector	1.9 miles	3	55 mph	The Regional Connector is an under-construction light rail subway corridor through Downtown Los Angeles to connect the Blue and Expo Lines to the current Gold Line and Union Station.
Purple Line Extension (PLE1)	3.92 miles	3	70 mph	The first section between Wilshire/Western and Wilshire/La Cienega is now under construction and is scheduled for completion in 2023.
PLE2	2.59 miles	2	70 mph	Section 2 of the Purple Line Extension Project will extend the subway to downtown Beverly Hills and Century City. Section 2 is also currently under construction and is scheduled for completion in 2025.
PLE3	2.56 miles	2	70 mph	Section 3 will then extend the project to two stations in Westwood. The passage of the Measure M sales tax ballot measure by county voters in 2016 will allow this section to be accelerated. Section 3 received the approval to move forward by Metro's board in 2016. Currently, in pre-construction, the project is anticipated to begin construction in 2019 and be open for operations in 2026.

C.4.2 METRO RAIL SAFETY FEATURES

Automatic Train Control (ATC)

This system automatically controls train movement, enforces train safety, and directs train operations. Automatic train control includes the subsystems of automatic train operation, automatic train protection, and automatic train supervision.
(MRL, MPL, MGL)

Automatic Train Protection (ATP)
This system maintains safe train operation through a combination of train detection, train separation, and speed limit enforcement.
(MRL, MPL, MGL, MBL, EXPO & PGL)

Automatic Train Operation (ATO)
This system performs any or all of the functions of speed regulation, programmed stopping, door control, performance level regulation, and other functions normally assigned to the train operator.
(MRL, MPL, MGL)

Automatic Train Supervision (ATS)
This monitors the system status and provides the appropriate controls to direct the operation of trains in order to maintain intended traffic patterns and minimize the effect of train delays on the operating schedule.
(MRL, MPL, MGL)

Local Control Panel (LCP)
This control panel is located in train control rooms/buildings along the right-of-way. The Local Control Panel performs control and indication functions for the signals and switches at the interlockings.
(MRL, MPL, MGL, MBL, EXPO & PGL)

Grade Crossing Warning System
Devices placed at grade crossings to warn motorists and pedestrians of on-coming trains.
(MBL, EXPO & PGL)

Four Quad Gates
Consists of two exit gates used in combination with standard entrance gates. The additional gate arms, combined with standard entrance gates, restrict access to the track crossing area.
(MBL, EXPO & PGL)

Train to Wayside Communication (TWC)
Using the TWC system, the train operator has the ability to control and activate certain switches, crossovers, and/or grade crossing warning devices.
(MRL, MPL, MBL, EXPO & PGL)

Pedestrian Swing Gates
Pedestrian swing gate provide pedestrian a visual and physical barrier to the railroad Right-of-Way. The gates open away from the tracks to allow easy ROW egress while forcing pedestrians to take a second to make a conscious effort to cross the tracks.
(MBL, EXPO & PGL)

Pedestrian Gates
Metro has implemented pedestrian gates to give a visual queue to pedestrians that they should not be crossing the tracks. These gates are synced with at-grade crossing gates to descend upon the approach of a train.
(MBL, EXPO & PGL)

In-pavement lights,
In-pavement lights help to alert automobiles and other vehicular traffic of an on-coming train on approach to an intersection.
(PGL)

Left turn gates
Metro has implemented a parking lot type gate arm in coordination with the city of Los Angeles signal system to prevent illegal left hand turns where practicable.
(MBL, EXPO)

Active TRAIN warning signs
To alert automobile and other vehicular and pedestrian traffic of an approaching train, Metro has installed active train approaching signs.
(MBL, EXPO & PGL)

LOOK BOTH WAYS signs
To alert pedestrians of an active train track, Metro has installed Look Both way's signs at all grade crossings systemwide.
(MBL, EXPO & PGL)

Active turn-prohibition blank out signs,
To alert automobile and other vehicular traffic that they should not attempt to turn, Metro has installed active turn prohibition blank out signs that activate upon the approach of a train.
(MBL, EXPO & PGL)

Photo enforcement system
Metro has initiated a traffic light violation campaign to mitigate the amount of violations at a number of high risk intersections.
(MBL, EXPO & PGL)

In-cab cameras

All Metro rail cars are equipped with in-cab cameras which assist in accident investigation, rules violations, and customer complaints.

C.4.3 RAIL FLEET

Car Manufacturer	Nippon Sharyo	Breda (Heavy)	Siemens	Breda (Light)	Kinki Sharyo
No. of cars in fleet	69	104	52	50	160
Car length	90 feet	75 feet	89 feet	90 feet	89 feet
Car width	8 feet, 8 ¾ inches	10 feet, 4 inches	8.7 feet	9 feet, 10 inches	8.7 feet
Car height	12 feet, 3 inches	12 feet, 7 inches	12 feet, 6 inches	12 feet, 6 inches	12 feet 6 inches
Car weight (empty)	98,000 lbs.	80,000 lbs.	98,043 lbs.	110,000 lbs.	99,000 lbs.
Passenger capacity, seated	76	59 (1 wheelchair space)	76	76	68
Maximum speed	55 mph	70 mph	65 mph	55 mph	65 mph

C.5 BUS MODE DESCRIPTION

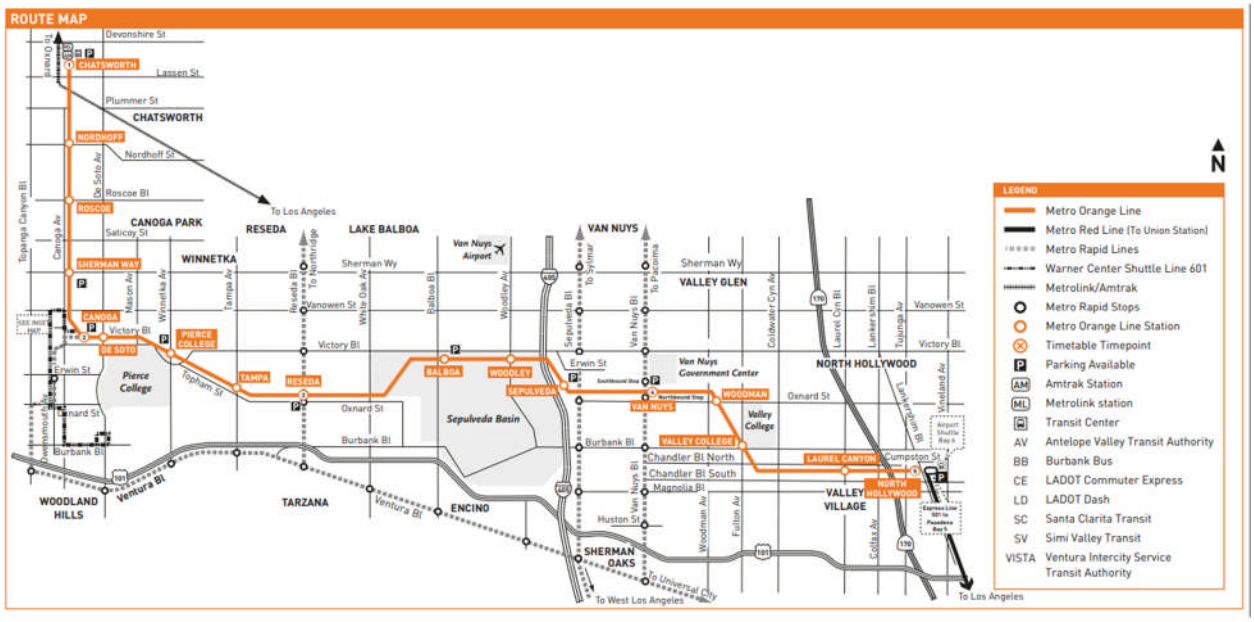
C.5.1 Metro Bus Lines at a Glance

- 13978 Bus Stops
- 165 Bus Routes
- 2,486 Bus fleet

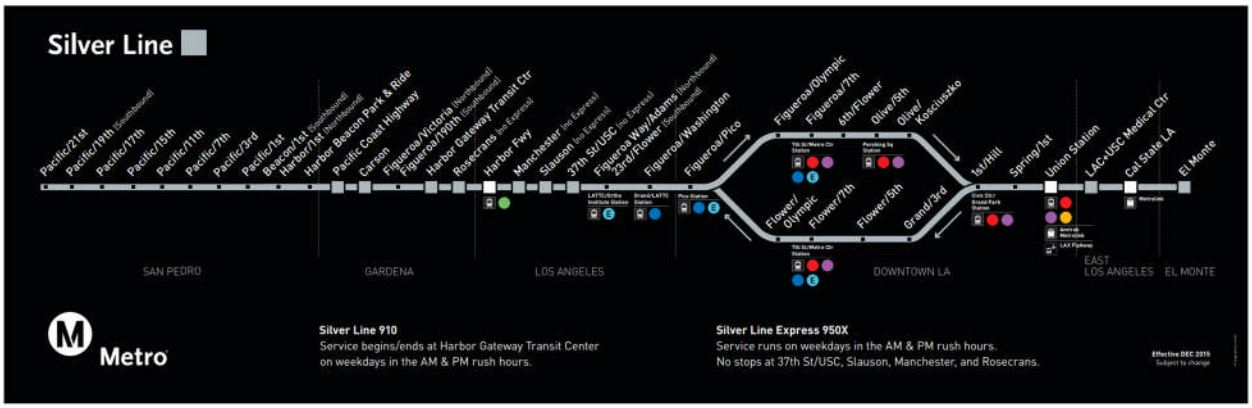
C.5.2 Bus Rapid Transit (BRT)

Bus Lines	Length of System	Number of Stations	Route(s) Description
Orange Line BRT	18 miles	17	Metro Orange Line buses operate between North Hollywood and Chatsworth 24 hours a day. At peak hours (between 6 am and 7pm eastbound, 5 am and 6 pm westbound), alternate buses run only between North Hollywood and Canoga Station. Passengers can transfer at Canoga to a shuttle bus that serves the Warner Center area.
Silver Line BRT	38 miles	11	Two services are operated under the Silver Line name: • **Route 910** operates with daily 24-hour service serving only the portion of the route between El Monte station, Downtown Los Angeles and the Harbor Gateway Transit Center. • **Route 950** operates with daily service serving the entire route between El Monte station, Downtown Los Angeles and San Pedro.
NoHo to Pasadena BRT (Future Route)	18	21-22	The North Hollywood to Pasadena BRT Project will operate between the North Hollywood Metro Red/Orange Line Station to Pasadena City College at Hill Street and Pasadena. Hoping to get dedicated lanes between the Red/Orange Line Station and the Memorial Park Station and operate in mixed flow along Colorado in Pasadena to PCC
Vermont BRT (Future Line)	12.4 Miles	9 to 10	The Vermont BRT Project will operate between Hollywood Blvd and 120th Street. We are looking at both side and combo side and center running BRT with dedicated lanes and enhanced stations with a number of passenger amenities

C.5.3 METRO ORANGE LINE ROUTE MAP



C.5.4 METRO SILVER LINE ROUTE MAP



C.5.5 METRO LOCAL

Metro Local buses are painted in an off-orange color which the agency has dubbed “California Poppy”. This type of service makes frequent stops along major thoroughfares. There are 18,500 stops on 189 bus lines. Some Metro Local routes make limited stops along part of their trip but do not participate in the Rapid program. Some Metro Local bus lines are operated by contractors MV Transportation, Southland Transit, and Transdev Metro Local buses cover both local, limited-stop, and shuttle bus services.

Metro Local buses can also be found on 400-series (4xx) and 500-series (5xx) routes, which are Metro Express routes with different fare structures and routing.

C.5.6 METRO RAPID

Metro Rapid buses are distinguished by their bright red color which the agency has dubbed “Rapid Red”. This bus rapid transit service offers limited stops on many of the county's more heavily traveled arterial streets. Studies of public bus transportation in Los Angeles have shown that half the time a bus is in service it is stopped either at a traffic signal or at a stop to board patrons.

To improve bus speeds, the Metro Rapid Program was introduced in June 2000. Through system integration of bus signal priority, floor buses, headway rather than timepoint based schedules, and fewer stops, passenger travel times have been reduced by as much as 29%. As a result, ridership increased up to 40% in the two demonstration corridors, with one-third of the ridership increase consisting of new riders who have never before ridden transit.

Key Metro Rapid Attributes:
- Simple route layout: Makes it easy to find, use and remember.
- Frequent service: Buses arrive as often as every 3-10 minutes during peak commuting times.
- Fewer stops: Stops spaced about ¾ of a mile apart at most major transfer points.
- Level boarding: Low-floor buses speed-up dwell times.
- Bus priority at traffic signals: New technology reduces traffic delay by extending the green light or shortening the red light to help Metro Rapid get through intersections.
- Color-coded buses: Metro Rapid’s distinctive red paint makes it easy to identify Metro Rapid buses.
- Enhanced stations: Metro Rapid stations have a very distinct design that includes passenger information and lighting.

C.5.7 METRO EXPRESS

Metro Express buses are routes designed as, minimal stop services along Los Angeles's extensive freeway network. There are 8 lines running as of 2018: 442, 460, 487, 489, 501, 534, 550, and 577.

C.5.8 BUS FLEET

Car Manufacturer	Fuel Type	No. of cars in fleet	Car length	Passenger capacity, seated
New Flyer	CNG	201	40 feet	43
New Flyer	CNG	851	40 feet	38
NABI	CNG	641	45 feet	46
NABI	CNG	390	60 feet	57
NABI	CNG	308	40 feet	20
NABI*	CNG	50	32 feet	25
New Flyer*	CNG	59	40 feet	40
BYD	Electric	60	40 feet	37
New Flyer	Electric	35	60 feet	50
*Contracted Bus Fleet				

The Metro bus fleet (as of November 2018) consists of buses of various makes and models.

All buses in the fleet have wheelchair lifts or ramps, and the METRO has purchased 45-foot Composite buses, and 60-foot articulated buses for the dedicated “Orange Line” busway as well as use on regular and rapid routes. METRO has over 2,308 buses in service on an average weekday.

C.5.9 METRO BUS SAFETY FEATURES

In addition to safety features required by Federal Motor Vehicle Safety Standards, Metro includes safety features in its bus procurement specifications as a means of increasing customer and operational safety.

SMARTDRIVE:

The Smart Drive is g-force based video monitoring utility. When an event on a bus reaches a threshold, the Smart Drive system records video footage. There are four types of events that are triggered and recorded by the SmartRecorder for use in the Measured Safety Program: Erratic, Shock, Speeding, and Manual. Erratic Events are characterized as Moving Events. They are triggered by sustained forces from multiple directions (front/back, left/right, and up/down) over relatively long periods of time (typically between 0.25 and 1.5 seconds) as measured by an accelerometer in the SmartRecorder.

- Erratic Events: These capture risky driving maneuvers such as hard braking, acceleration, turning, swerving, speed bumps, dips in the road, etc. Shock Events are also characterized as Moving Events. They are triggered by sudden changes in force in any direction as measured by an accelerometer in the SmartRecorder.

- Shock Events: These have a higher likelihood of recording Collisions, but they can also be triggered by other actions that involve sudden changes in forces such as when a vehicle hits a pothole or a bump at high speed.

- Speeding Events: These are characterized as Moving Events. They are triggered when the vehicle speed exceeds a specified threshold. For example, if the threshold is set for 70 mph then the SmartRecorder will record a Speeding Event when the vehicle speed exceeds 70 mph. To balance the number of Speeding Events that may be recorded at any given time, the SmartRecorder will only record one Speeding Event within a 30-minute timeframe.

- Manual Events Unlike the other three event types, manual events are not Moving Events. They are triggered when the driver or other occupant of the vehicle presses the manual trigger button on the SmartRecorder or on the keypad. Manual Events enable Operators to record Videos which contain actions of interest that are not necessarily related to risky driving.

OPERATOR BARRIERS

In 2013 Metro began the process of retrofitting buses with a steel and polycarbonate barrier that protects the driver from assault. All new busses are equipped with these barriers, however operators are given the option to use the barrier or not.

COLLISION AVOIDANCE TECHNOLOGY

Metro is undergoing a pilot program to implement and audible/visual system to help to mitigate collisions with both automobiles and pedestrians.

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix D: Safety Performance Measures and Performance Targets

Metro

Version 1.0 issued July 1, 2020

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

APPENDIX D: SAFETY PERFORMANCE MEASURES AND TARGETS

Metro'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

Performance Measures	Targets
Fatalities	0
Fatality Rate per 100000 Revenue Miles	0
Reportable Injuries	≥5% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate per 100000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate per 100000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Rail (mean distance between major mechanical failures)	≥ 5% Increase in System Reliability based on previous year's NTD reported numbers

BUS MEASURES AND TARGETS

Performance Measures	Targets
Fatalities	0
Fatality Rate per 100000 Revenue Miles	0
Reportable Injuries	≥5% Reduction of previous year's NTD reported numbers
Reportable Injuries Rate per 100000 Revenue Miles	Based on Total Reported Injuries
Reportable Safety Events	≥5% Reduction of previous year's NTD reported numbers
Reportable Safety Events Rate per 100000 Revenue Miles	Based on Total Reported Safety Events
System Reliability Bus (mean distance between major mechanical failures)	≥ 5% Increase in System Reliability based on previous year's NTD reported numbers

*Note: Historical data has been obtained from the NTD System/ **Single year data chosen due to varying NTD Reporting Thresholds

Safety Events: • Collisions • Fires • Derailments including non-revenue vehicles • Hazardous Material Spills • Acts of God • Other Safety Events as described in 2019 NTD Safety and Security Policy Manual Page 23 - (Slip/ trip/ fall, smoke, power failure event, maintenance issues or electrical shock that require 1 or more persons transported; runaway train).

Safety Performance Targets:

1. 0 FATALITIES (total number of reportable[1] fatalities and rate per 100,000 vehicle revenue miles by mode).
2. ≥5% Reduction of INJURIES (total number of reportable[1] injuries and rate per total vehicle revenue miles by mode) based on Metro's previous year's NTD reported numbers.
3. ≥5% Reduction of SAFETY EVENTS (total number of reportable events and rate per total vehicle revenue miles by mode) based on previous year's incidents.
4. ≥5% Increase in SYSTEM RELIABILITY (mean distance between major mechanical failures[2] by mode) based on previous year's incidents.

[1]The thresholds for "reportable" fatalities, injuries, and events are defined in the NTD Safety and Security Reporting Manual.

[2]Major Mechanical System Failures: Major mechanical system failures prevent a vehicle from completing or starting a scheduled revenue trip because actual movement is limited or because of safety concerns. Examples of major bus failures include breakdowns of brakes, doors, engine cooling systems, steering, axles, and suspension.

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix E: Operations and Maintenance Departments

Metro

Version 1.0 issued July 1, 2020

APPENDIX E: OPERATIONS AND MAINTENANCE DEPARTMENTS

Per the organization chart as seen in Appendix B, the department head of operations is responsible for ensuring the overall safety for Metro Rail and Bus system.

The department head of operations:

- Directs the utilization of resources available to departments within Operations for the Bus and Rail modes.
- Provides direction and support to all transit operations functions to ensure attainment of Metro and departmental objectives within established policies and parameters
- Coordinates activities within transit operations to assure peak performance and productivity, as well as conformance with established or mandated external regulations and policies affecting Metro operations
- Develops and implements strategic business plans focusing on transportation needs in cooperation and coordination with all Metro departments involved in regional decisions
- Provides counsel to the CEO on significant matters affecting Metro transit operations and policies
- Creates Metro's safety vision; approves and adopts the agency's safety rules, policies, and procedures; communicates safety expectations; and maintains accountability for the safety performance of the entire agency
- Assists the CEO in developing and implementing short-range and long-range goals and business plans
- Formulates policy recommendations for the Board of Directors, attends Board meetings, and advises Board

E.1 METRO RAIL MODE

Per the organization chart as seen in Appendix B, the department head is responsible for ensuring the overall safety for Metro Rail operations. The Rail Operations Department and Management staff (Transportation, Rail Fleet Services, & Wayside Systems) 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 Wayside employees, Rail Facilities and Custodial personnel, Rail Transit Operations Supervisors (Rail TOS's), ROC Controllers (Train and Communication Controllers), Train Operators, Contractors, and emergency response personnel as required to ensure compliance with Standard Operating Procedures (SOPs).

E.1.1 RAIL TRANSPORTATION

The Senior Executive Officer of Transportation oversees all the rail transportation divisions, field operations, Rail Transportation Instruction department, Rail Operations Control, 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
- Maintain certification and re-certification requirements as outlined in the training matrix found in Appendix H
- Oversee the activities of the Rail Operating and Maintenance Divisions.
- Develop and oversee implementation of the Efficiency Testing Program
- Comply with Metro's System Modification Procedure (CF15)

E.1.1.1 Rail Transportation Divisions

The department head of each Transportation Division has the following responsibilities:

- Manage day-to-day operations at the Division, monitor train operators' in-service operation; communicate safety messages to Train Operators; investigate accidents 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 medical certificates; operators receive training, and re-training
- Take appropriate action(s) to resolve reported or otherwise identified hazards and near-miss incidents as required under the Hazard Management Program
- Oversee the performance of Rail Transit Operations Supervisors as Line Supervisors, and Yard Controllers
- Interact with the Instruction Management team
- Oversee the Rail Transit Operations Supervisors' Investigation of rail system operational incidents, injuries and property losses
- Schedule and conduct the required annual emergency drills

E.1.1.2 Rail Operations Control (ROC)

The Rail Operations Control (ROC) monitors and controls METRO rail operations for all rail lines. Operations include train control, traction power, fire-life safety systems, communications, issuance of train orders, operating clearances and/work permits 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 of ventilation systems that evacuate smoke and gases from tunnels. SCADA monitors or controls virtually all the subsystems on the rail systems. The ROC is staffed twenty-four hours per day, seven days per week.

The department head of Rail Operations Control (ROC) is responsible for overall supervision of the ROC staff, who are responsible for monitoring and authorizing train movement and Closed-Circuit Television operations. The Closed-Circuit Television staff monitors and reports on issues such as platform congestion, vandalism, safety, and security problems. The department head of ROC is responsible for the following activities:

- Oversees the activities of Rail Controllers, Rail Controller Instructors and Closed-Circuit Television staff
- Ensures Rail Controllers have the required licenses, up-to-date medical certificates, training, and re-training
- Implements changes in procedures by issuing bulletins and notices to the Controllers
- Develops and maintains rail system emergency preparedness and response plan for the ROC

E.1.1.3 Rail Transportation Instruction

The Rail Transportation Instruction department is responsible for delivering and administering comprehensive instruction to trainees. In addition, the department ensures that all employees, contractors, and outside agencies demonstrate and maintain a satisfactory level of job knowledge and performance in keeping with Metro's standards of operation. Training responsibilities include:

- Oversees operating rules and procedures
  - Development
  - Implementation of changes

- Oversees training lesson plan development and implementation
  - New Hire Rail Operator Training
  - New Hire Rail Transportation Operation Supervisor (RTOS) Training
  - Line Instructor Training
  - Rail Safety / Wayside Worker Protection (WWP) Training
  - Retraining / Return to Work Training
  - Familiarization Training / Training for Change
  - Certification / Re-certification

- Takes corrective actions as necessary to prevent or mitigate recurrences of incidents, accident or occupational injuries.
  - Post-Accident/Incident Training
  - Refresher Training
  - Efficiency Testing
  - Performs observation checks on assigned personnel and evaluates their performance, including safety behaviors, and any need for further instruction.

- Supports investigations of incidents and accidents as necessary

E.1.2 RAIL FLEET SERVICES (RFS)

The department head of Rail Fleet Services oversees Rail Fleet Services. The Rail Fleet Service Shops are where vehicle inspections and maintenance for the entire fleet occurs. The Rail Fleet Services Department is split into two groups. The first group, Rail Fleet Services, is responsible for meeting daily rollout and for maintenance and repair of both light and heavy railcar fleets. The second group, Rail Vehicle Engineering, is responsible for quality assurance/ warranty, fleet engineering, and the overhaul programs.

E1.2.1 Rail Fleet Service Shops

The Rail Fleet Service (RFS) Shops are tasked with providing a safe and mechanically reliable fleet of rail cars. RFS utilizes preventative maintenance programs that include performing maintenance on vehicles at regularly scheduled mileage intervals. The intent is to maintain vehicles in a condition compatible with the highest safety, dependability, and appearance standards. Well-designed preventative maintenance procedures, and enforcement of these procedures, ensure the highest possible reliability of the rail vehicles.

The scheduled preventative maintenance programs attempt to identify problem areas before they require unscheduled corrective maintenance. Therefore, reporting requirements are developed for each inspection procedure to support future preventative maintenance activities as well as effectively communicate the specific need for corrective maintenance. The flow of information between preventative and corrective maintenance activities is critical to the success of both types of Maintenance.

Records of all preventative maintenance actions are documented in the Maintenance Management System database. The preventative maintenance programs include the following:

•Inspection - All rail vehicles are subjected to a periodic inspection program (based on accumulated mileage) to determine if conditions exist that require a maintenance action. The level and frequency of inspections is consistent with contractor and supplier recommendations, industry standards, the safety-criticality of the equipment, and operational experience.

•Servicing - Servicing consists of regularly scheduled activities that are necessary to maintain the performance of the vehicle and its components. These activities include lubrication and adjustment, but they also may involve the replacement of consumables such as air filters. Equipment manufacturers provide recommended servicing schedules in their maintenance manuals. Although manufacturer recommendations will be followed during the warranty period of rail vehicles,

servicing schedules may subsequently be modified to suit the operating conditions of each particular rail system.

For planning purposes, the preventative maintenance of rail vehicles is performed on the basis of miles of operation in accordance with the Rail Fleet Services Maintenance Plan.

Rail Fleet Service 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
- Develop equipment overhaul specification for all fleets supporting Procurement Department throughout bid process
- Provide project management for railcar overhaul programs
- 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 accidents 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 & 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
- Comply with Metro's System Modification Procedure (CF15)

E.1.2.2 Rail Vehicle Engineering

The Rail Vehicle Engineering Department's functions include:

- Provide engineering support to both light and heavy railcar fleets in matters other than normal maintenance activities
- Develop test and modification bulletins for all fleets and coordinate with affected departments on these modifications

The quality assurance functions that are performed include the following:

- Perform quality assurance and warranty support activities as necessary to ensure equipment and maintenance activities comply with approved procedures and are being followed
- Inspect all new rail equipment to ensure compliance with all technical, operational and contractual requirements
- Provide quality assurance and warranty inspection on new, rebuilt and overhauled parts and components to ensure compliance with all technical requirements and good manufacturing practices
- Monitor new equipment test programs for functionality, maintainability and safety

E.1.3 WAYSIDE SYSTEMS

The department head of Wayside Systems oversees the activities of Track Maintenance, Traction Power, Signal, Rail Communications and Supervisory Control and Data Acquisition (SCADA) Engineering, and Rail Facility Maintenance and Custodial Services.

All maintenance is performed in accordance with the Wayside Systems Maintenance Plans for each discipline. Manufacturers recommendations, Federal regulations, Industry Standards, and operational experience were used as guidelines in developing the maintenance plans.

E.1.3.1 Track Maintenance

CPUC GO 143-B, Section 14.05, requires the establishment of a track inspection and maintenance program. All rail system tracks will be inspected and maintained in accordance with CPUC General Order 143-B, Section 14.05. All design and construction will be done using the American Railway Engineering and Maintenance of Way Association Manual as a guideline, as required by CPUC GO 143-B, Section 9.01.

Frequent track inspection is performed to identify potential safety hazards and to report on the changing conditions of track geometry. Main line track is inspected twice each week with at least one-day interval between inspections. Track geometry and fit is inspected for obvious gage and alignment defects, improper ballast section and washouts, tightness and proper fit of switch points and other moving parts. Rail is checked for cracks, deterioration, corrugation, excessive wear, and the right-of-way is inspected for vegetation growth. There are also inspections of the right-of-way for possible clearance infringements.

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 a maintenance plan 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 for review and audit.
- Comply with Metro's System Modification Procedure (CF15)

E.1.3.2 Traction Power Maintenance

The Traction Power preventative maintenance plan is a scheduled program that was developed through standard maintenance and operating procedures, based on manufacturer recommendations and experience. Inspection forms have been developed for each piece of equipment to document that the preventative maintenance has been performed.

Corrective maintenance consists of trouble-shooting failures and returning equipment to service. Personnel are dispatched by ROC via radio regardless of their assigned preventative maintenance areas. Once on the scene, the inspector will determine what the failure is and take the corrective measures necessary to maintain continuity of revenue service. When necessary, temporary repairs are made in order to maintain revenue service and permanent repairs are performed during non-revenue hours.

Traction Power Maintenance responsibilities include:

- Inspect and maintain electrical power substations, third rail system, overhead contact systems, auxiliary power equipment, ventilation system, tunnel lighting, uninterruptible power supply, and other associated equipment
- Utilize a maintenance plan 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 for review and audit
- Comply with Metro's System Modification Procedure (CF15)

E.1.3.3 Rail Signal Maintenance

The Rail Signal preventative maintenance plan is a scheduled program routinely performed at specific intervals. The maintenance intervals are set by following the Association of American Railroads (AAR) guidelines, equipment Operations and Maintenance manuals, industry standards such as American Public Transportation Association (APTA), and by tracking equipment performance through routine inspections and failure reports. Manpower deployment is accomplished by means of a check off schedule that lists the routine tasks to be accomplished during the set time frame. This system is designed to prevent duplication of tasks and provides a means whereby many different tasks can be performed in an efficient and timely manner. Reports are filed for each task that is completed and are reviewed to determine if any

further action is needed. The objectives of the preventative maintenance plan are to ensure operational safety and system dependability by means of periodic testing and inspections; to reduce service failures; to prolong equipment life; to minimize maintenance costs; and to optimize manpower allocations.

The maintenance consists of troubleshooting failures, the repairing of failed equipment, and returning equipment to operation in a safe, efficient, and timely manner. Equipment failures that affect the operation of revenue service are handled by response crews, who are notified by ROC through radio dispatched trouble calls. Failed equipment is replaced in kind and repaired at a later date to minimize disruption to revenue service. The response crews file trouble reports to track equipment failures and to aid in troubleshooting the failed equipment.

Equipment is repaired in-house whenever possible or through an exchange program with the manufacturer and returned to stores as spare equipment. The philosophy of the corrective maintenance plan is to repair failed equipment as quickly as possible with minimal effect on revenue service. Rail Signal Maintenance responsibilities include:

- Inspect and maintain train protection system, train control and crossing warning systems; maintain the track switches, wayside cab signaling system, wayside signals and associated track circuits
- Utilize a maintenance plan 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 for review and audit
- Comply with Metro's System Modification Procedure (CF15)

E.1.3.4 Rail Communications and Supervisory Control and Data Acquisition (SCADA)

Rail Communication Systems, Transit Automatic Control System (TRACS)/Supervisory Control and Data Acquisition (SCADA) responsibilities include:

- Service and maintain Rail Operations Control (ROC) Supervisory Control and Data Acquisition systems, Public Announcement systems, Radio systems, Closed-Circuit Television systems, the Transit Passenger Information System (TPIS) and the Emergency Telephones (ETEL's)
- Utilize a maintenance plan 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 for review and audit
- Perform facilities inspections as outlined in the department's maintenance plan

- Comply with Metro's System Modification Procedure (CF15)

E.1.3.5 Rail Facility Maintenance and Custodial Services

Specialized supervisors and technical staff maintain rail facilities and systems in safe operating condition. Responsibilities of Facilities Maintenance include the following:

- Perform preventative and remedial maintenance of shop and rail facility equipment; perform building construction and repair and maintenance work on station platforms, parking lots and structures, deluge systems, and on the right-of-way (fences and signs, etc.)
- Perform facilities inspections
- Utilize a maintenance plan 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 for review and audit
- Comply with Metro's System Modification Procedure (CF15)

E.2. METRO BUS MODE

E.2.1 BUS TRANSPORTATION

The Senior Executive Officer of Bus Transportation oversees eleven bus transportation divisions and directs the overall activities of Metro's bus service delivery.

E.2.1.1 Bus Transportation Divisions

The head of each Bus Transportation Division has the following responsibilities:

- Safety within their organizational units including the safety of employees, facilities, equipment, operations, and services provided.
- Safety programs within their organizational units
- Coordinating the implementation and maintenance of these safety programs.
- Ensuring employees comply with safe and healthy work practices, communicating with employees regarding occupational health and safety issues, identifying, evaluating and correcting hazards in a timely manner, ensuring that all accidents, injuries, and illnesses are investigated and that recommendations, if appropriate, for corrective actions are developed and implemented as warranted.
- Evaluating the potential impact of proposed modifications on the safety of all affected systems prior to implementation.
- Ensuring that employees have required licenses, and all required up-to-date certifications.

- Ensuring that supervisors and employees under their control are trained in the elements of hazards associated with their work environment, job specific safety requirements, and safety-related policies, procedures, rules, and work practices.

E.2.1.2 Bus Operations Control (BOC)

The BOC manages daily bus operations. This facility dispatches Transit Operations Supervisors in response to collisions and other operational problems. The BOC also provides notification to various departments in the event of emergencies and arranges for replacement equipment. The BOC contacts Field Equipment Technicians and division maintenance to respond to bus road calls The BOC is staffed 24 hours a day, seven days a week.

E.2.2 BUS MAINTENANCE

Bus maintenance is tasked with providing a safe and mechanically reliable fleet of buses. Bus maintenance utilizes preventative maintenance programs that include performing maintenance on vehicles at regularly scheduled mileage intervals. The intent is to maintain vehicles in a condition compatible with the highest safety, dependability, and appearance standards. Well-designed preventative maintenance procedures, and enforcement of these procedures, ensure the highest possible reliability of bus fleet.

The scheduled preventative maintenance programs attempt to identify problem areas before they require unscheduled corrective maintenance. Therefore, reporting requirements are developed for each inspection procedure to support future preventative maintenance activities as well as effectively communicate the specific need for corrective maintenance. The flow of information between preventative and corrective maintenance activities is critical to the success of both types of maintenance.

Records of all preventative maintenance actions are documented in the Maintenance Management System. The preventative maintenance programs include the following:

- Inspection: All buses are subjected to a periodic inspection program (based on accumulated mileage) to determine if conditions exist that require a maintenance action. The level and frequency of inspections is consistent with contractor and supplier recommendations, industry standards, the safety-criticality of the equipment, and operational experience.
- Servicing: Servicing consists of regularly scheduled activities that are necessary to maintain the performance of the vehicle and its components. These activities include lubrication and adjustment, but they also may involve the replacement of consumables such as air filters. Equipment manufacturers provide recommended servicing schedules in their maintenance manuals. Although manufacturer recommendations will be followed during the warranty period of bus vehicles,

servicing schedules may subsequently be modified to suit the operating conditions of each particular bus division.

For planning purposes, the preventative maintenance of buses will be performed on the basis of miles of operation in accordance with the *Revenue Service Bus Maintenance Plan*.

Bus Maintenance functions include:

- Conduct prescribed inspections of buses in the manner specified by the *Revenue Service Bus 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
- Ensure bus maintenance 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
- Comply with Metro's System Modification Procedure (CF15)

E.2.3 Central Maintenance Facility (CMF)

CMF provides maintenance support to operating divisions. The facility consists of Central Maintenance Shops, Fleet Management and Support Services, and Quality Assurance. The Quality Assurance staff also serve as Metro's liaison with the California Highway Patrol and is responsible for managing compliance with Title 13 of the California Code of Regulations.

The Central Maintenance Shops provide heavy maintenance and bus refurbishment for all bus operating divisions including complete bus painting, major accident repair, engine replacements, and mid-life overhauls/ refurbishments. Additional Central Maintenance Shop functions include the rebuild and fabrication of parts and tools used by bus maintenance and other Metro departments.

Fleet Management and Support Services controls and assigns the bus fleet, aids in repair to buses en-route and at layover zones to avoid service disruption and provides Maintenance Management System technical support to maintenance departments.

The Quality Assurance department is directly responsible for the management of goods and services contracts, bus fire investigations, and brake tests.

The Contract services department is directly responsible for contracted operations oversight.

The non-revenue department is directly responsible for non-revenue vehicle/equipment.

The Revenue Collection department is directly responsible for fare collection maintenance, and radio equipment maintenance.

E.2.4 Operations Central Instruction (OCI)

Metro's OCI Department provides the training ground and continual support to the agency's Operations employees working in Bus Maintenance and Transportation. Mission critical training responsibilities include:

- New Hire Bus Operator Training
- Post-Accident Training
- Safety Training (several certification courses)
- Customer Relations Training
- Line Instructor Mentor Training
- Transportation Safety Institute (TSI) Instructor's courses in:
    - Bus Operator Training Accident Investigation Training
    - Return to Work Training
    - World Class Customer Service training

Additionally, OCI produces and implements ad hoc training programs to address any of the numerous endeavors Metro undertakes to improve service to our customers.

OCI serves as an extension of the Department of Motor Vehicles (DMV) for commercial licensing purposes through DMV's Employer Testing Program (ETP). Through ETP, all OCI instructors are trained and certified by the DMV to conduct official pre-trip, skills and road examinations of employees required to obtain a commercial driver license. The Transportation Safety Institute (TSI) also partners with OCI's own official TSI certified instructors who dedicate themselves to train and certify others to become official train-the-trainers. This credential is necessary to provide legally sanctioned training for coach operators and supervisors who must receive annual training to maintain CDL validity.

E.2.6. Vehicle Technology

Vehicle Technology identifies, reviews, tests, and procures high-capacity, alternative fueled, advanced technology buses. It provides operational and technical support and training on the operation and maintenance of new vehicles, manages all bus acquisitions, processes bus warranty claims, and oversees advanced vehicle technology projects that can increase operating efficiency or improve services provided for Metro transit passengers and employees.

E.3. FACILITIES MAINTENANCE

The Central Facilities Maintenance group provides direct support to all Metro operating divisions. An important function of facilities includes the development, implementation, and management of capital programs for Metro's facilities to improve existing facilities and the promote employee safety.

Facilities Maintenance has the following functions:

- Provides HVAC, locksmith services, plumbing, painting, and other property maintenance tasks
- Manages select contracted services such as crane inspection/repair, graffiti abatement, glass service, landscaping and railroad right-of-way and parcel property maintenance.
- Produces decals for Metro buses in addition to signs for bus stops, rail, facilities and yard signage (Sign Shop).
- Maintains terminals, bus stops, layover zones, and inactive right-of-way (Stops and Zones)

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix F: Rail Accident Investigation Procedures (Rail AIP)

Metro

Version 1.0 issued July 1, 2020

PART 1 GENERAL OVERVIEW

1.1 INTRODUCTION

Section 99152 of the Public Utilities (PU) Code authorizes the California Public Utilities Commission (CPUC) to regulate and oversee the safety of rail transit systems in the State of California. To fulfill its oversight responsibilities, the CPUC establishes safety requirements by adopting rules and procedures, known as General Orders (GO). In 1996, the CPUC adopted GO 164 series, "Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems", in response to the Federal Transit Administration's Final Rule 49 Code of Federal Regulations, Part 673, which requires State safety oversight of rail fixed guideway systems. The requirements for reporting and investigating rail accidents by transit agencies are found in the GO 164 series. Section 315 of the PU Code specifically addresses the investigation of accidents by the CPUC and reads in part:

> "The Commission shall investigate the cause of all accidents requiring, in the judgment of the Commission, investigation by it, and may make such order as in its judgment seems just and reasonable."

The CPUC has the authority to conduct its own independent accident investigations. However, in actual practice the CPUC has delegated this responsibility to the Rail Transit Agencies (RTA's) on behalf of the Commission.

To meet these requirements, the Los Angeles County Metropolitan Transportation Authority (METRO) has developed the following procedures to be used in the event of rail accidents.

1.2 PURPOSE AND OBJECTIVES

The purpose of this document is to establish procedures and guidelines to be followed by METRO personnel responding to rail accidents. These procedures are intended to facilitate the following objectives:

- To improve system safety by reporting and investigating all reportable rail accidents and implementing corrective measures, if warranted, to prevent or mitigate recurrences.
- To define the role and responsibilities of individuals, and departments who respond to rail accidents which occur on Metro's operating rail lines.

These procedures detail the accident reporting procedures from the initial notification, through investigation, to the actual preparation of the final report, and tracking of any corrective measures.

Each department is responsible for carrying out their tasks as defined in the Rail Accident Investigation Procedures.

PART 2 GENERAL INVESTIGATION PROCESS

2.1 RESPONSE

Upon notification of an accident by ROC, Metro staff shall proceed to the accident scene and report to the Metro On-Scene Coordinator (OSC), and support the accident investigation process as described below.

2.2 ACCIDENT INVESTIGATION ACTIVITIES

Metro will identify an On-Scene Coordinator (OSC) who will act as a liaison with ROC for all at the scene activities. The Metro OSC will report to the Incident Command Post, if it has been established, or to the Fire or Police personnel assigned or acting as Incident Commander. The OSC will afford the Incident Commander assistance to mitigate the situation.

The OSC will conduct the investigation for all accidents. The Incident Commander jointly with the OSC will determine when to release the scene for normal operations.

The following activities should be conducted by the OSC or his/her designee, or support departments, **if applicable and to the extent possible**:

- Secure the scene
- Inspect/preserve physical evidence
- Document fact/findings
- Conduct interviews
- Take photos
- Take measurements
- Assess requirement for drug test per Metro Drug and Alcohol Policy
- Prepare Supervisor's Report

The OSC should document the facts concerning the following: damage to equipment and infrastructure, weather conditions, position and status of signals, switches, cab controls and cut out controls, use of audible warning devices, application of brakes, use of sand, area of impact, and point of rests of other parties involved in the accident, etc.

PART 3 ROLES AND RESPONSIBILITIES

3.1 GENERAL

The following sections support the foregoing accident investigation process; identify and expand on roles and responsibilities of responding personnel representing the various departments within Metro. This information has been established to ensure that each Department and all personnel within each section understand and provide support to the Rail Accident Investigation Procedures.

It is recognized that not all departments will need to respond to all types of accidents occurring on the operating rail system. The detailed functions described in this part apply to the investigation of accidents described under Section 3.2.2 of this document.

3.2 SAFETY DEPARTMENT

3.2.1 RESPONSIBILITY

The safety department has primary responsibility for developing and updating the Accident Investigation Procedures. In addition, it will provide accident investigation training resources for use by other departments.

The safety department will be responsible for preparing the report that is required by the California Public Utilities Commission (CPUC), by reviewing information contained in various internal and third party reports, videos, and data/information collected by Corporate Safety staff.

The safety department will be the liaison in the event of a major accident (such as train vs. train collision, non-arson related fires requiring evacuation due to life safety reasons, warning device malfunctions resulting in a fatality or serious injuries, etc.), investigated by the National Transportation Safety Board (NTSB), and for arranging accident reconstructions when warranted. In the event of an NTSB investigation, the safety department will coordinate secure storage and protection of physical evidence at or away from the accident scene.

Regarding Interim report, in the event information such as Police Reports, Coroner's Reports, etc. is not available at the time the report is due, an interim report will be submitted to the CPUC per the GO 164 series requirements, including 30-day updates, if applicable.

Only staff who have completed the Transportation Safety Institute, Transit rail Incident Investigation class and/or currently possess the Transit Safety and Security Program (TSSP) Certificate should complete the required CPUC Accident Investigation Report.

3.2.2 NOTIFICATION TO REGULATORY AGENCIES

The safety department will notify the CPUC within two (2) hours of any accident that meets the following thresholds identified in 49CFR674 and FTA's Two-Hour Accident Notification Guide published on 2/23/2018

- Fatality (occurring at the scene or within 30 days following the accident).
- Property damage[(1)] resulting from a collision involving a rail transit vehicle.
- Any collision between a rail transit vehicle and another rail transit vehicle.
- Any collision at a grade crossing resulting in serious injury[(2)] or fatality.
- A collision with a person resulting in serious injury or fatality.
- A collision with an object resulting in serious injury or fatality.
- A runaway train.
- Evacuation due to life-safety reasons[(3)] .
- A derailment (mainline or yard).
- Fire resulting in a serious injury or fatality.

[(1)] Substantial damage (as defined in the Guide) includes damage which adversely affects the structural strength, performance, or operating characteristics of the vehicle, facility, equipment, rolling stock, or infrastructure requiring towing, rescue, onsite maintenance, or immediate removal prior to safe operation.

[(2)] Serious injury as defined in 49CFR674 means an injury which: (1) Required 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 nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or involves second or third degree burns, or any burns affecting more than 5% of the body surface.

[(3)] An evacuation for a life safety reasons is a condition that occurs when persons depart from transit vehicles or facilities for life safety reasons, including self-evacuation. A life safety reason may include a situation such as a fire, the presence of smoke or noxious fumes, a fuel leak, a vehicle fuel leak, an electrical hazard, a bomb threat, a suspicious item, or other hazard that constitutes a real potential danger to any person. **DO NOT PROVIDE** Two-Hour Accident Notifications for evacuations that are not for a life safety reason such as an evacuation of a train into the right of-way or onto adjacent track; or customer self-evacuation or transfer of passengers to rescue vehicles or alternant means of transportation due to obstructions, loss of power, mechanical breakdown and system failures, or damage.

The following information will be provided as part of the electronic notification (record of notifications are available from the CPUC):

- The time and date of the accident;
- The location of the accident;
- The number of fatalities and/or injuries;
- The rail transit vehicle involved in the accident;
- The type of incident and brief description of accident,
- The emergency response organizations at the scene of the accident.

The safety department representative shall also notify other Regulatory Agencies in accordance with existing requirements of the Federal Transit Administration, Federal Railroad Administration, and the National Transportation Safety Board.

The safety department shall be responsible for providing the CPUC staff an opportunity to participate to the fullest extent possible in all aspects of the investigation. The safety department representative will provide advance notification of additional (other than those conduced at the scene) interviews, inspections, measurements, tests, examinations and meetings with investigators, consultants, review boards, etc. to review, analyze and draw conclusions regarding accident related information.

3.2.3 CPUC INVESTIGATION REPORT

On behalf of the CPUC, the safety department is responsible for preparing the investigation report, which includes reviewing external reports such as Police, Fire, Coroner, etc., if applicable, and then preparing reports on forms prescribed by the CPUC. The safety department is also responsible for tracking any corrective action plans resulting from the investigations.

The report will be submitted to the CPUC within 30 calendar days after the last day of the month in which the accident occurred.

3.3 RAIL OPERATIONS CONTROL (ROC)

3.3.1 NOTIFICATION

Rail Operations Control (ROC) receives the initial report of any accident on the rail system. Upon notification, ROC dispatches a field supervisor to respond to the scene and then notifies all pertinent internal departments and external agencies such as law enforcement and emergency response agencies of the nature of the incident.

ROC is responsible for supporting all activities required at the accident scene through the On-Scene Coordinator (OSC).

ROC is responsible for maintaining service, if possible, or arranging for alternate transportation services and preserving video, Supervisory Control and Data Acquisition (SCADA)/Transit Automatic Control System (TRACS) and voice and data communication information prior to, during, and following all accidents.

ROC will document all requests and events as they occur at the accident scene from initial notification of an accident until service is re-established.

3.3.2 ROC FOLLOW UP ACTIVITIES

ROC is responsible for maintaining the above information and for providing it in support of the accident investigation process and for supporting subsequent activities related to the process.

3.4 RAIL TRANSIT OPERATIONS SUPERVISOR (RTOS)

The Rail Transit Operations Supervisor will be responsible for assuming the role of On Scene Coordinator (OSC), conducting an investigation and completing the required reports.

3.4.1 RAIL TRANSIT OPERATIONS SUPERVISOR (RTOS) FOLLOW UP ACTIVITIES

The On-Scene Coordinator is responsible for completing the Supervisors Report, in the Metro's electronic database system.

3.5 TRAIN OPERATORS

3.5.1 AT SCENE PROCEDURES

Train Operator's shall:

a.) Contact ROC immediately & describe the type of accident, location, injuries and damage.
b.) Protect self and passengers from hazards created by the accident.
c.) Attempt to extinguish any fires, if possible, without taking undue risks.
d.) Coordinate evacuation, if necessary, with ROC/OSC. Make PA announcements to keep passengers informed of the situation and status of response agencies.
e.) In case of injuries, protect the injured parties, but do not attempt to move them, unless they require assistance in evacuating if a fire is involved. Do not volunteer ambulance service or ask persons if an ambulance is desired, unless it is obvious that such service is necessary. However, if a person requests an ambulance, immediately notify the OSC or ROC.
f.) Pass out Courtesy Cards to bystanders and other persons who were in a position to have witnessed the accident. If injuries occurred on that train, use Courtesy Cards and indicate on the card "passenger."
g.) Provide the police and other driver(s) with necessary information.

3.5.2 TRAIN OPERATOR FOLLOW UP ACTIVITIES

The Train Operator is responsible for completing and preparing his or her accident report in Metro's electronic database system. The train operator is also responsible for cooperating in the accident investigation process.

3.6 DEPARTMENT MANAGERS

3.6.1 DEPARTMENT MANAGERS FOLLOW UP ACTIVITIES

The Department Manager is responsible for coordinating the following activities in all accidents.

a.) Ensure employee(s) involved in the accident are interviewed and complete their required reports.
b.) Ensure the completion and accuracy of all reports.
c.) Support accident investigation process by providing information such as training records, accident history, hours of service, fatigue, etc.
d.) Implement remedial action(s) necessary to prevent or mitigate recurrences.

3.7 RAIL FLEET SERVICES

3.7.1 AT SCENE PROCEDURES

Upon arrival at the accident scene, the Rail Fleet Services representative will report to the OSC and shall be responsible for the following tasks:

a.) Provide information and/or assistance to the OSC as requested.
b) Make and implement recommendations to the OSC in regard to their specialty, for expediting restoration of normal revenue service.

3.7.2 FOLLOW UP ACTIVITIES

The Rail Fleet Services Department will be responsible for the following activities after the incident train has returned to the shop:

a.) Conduct a post accident inspection of the incident train(s) and document findings.
b.) Provide maintenance records & technical data, & make recommendations as appropriate.
c.) Take any remedial actions necessary to prevent or mitigate recurrences.

3.8 WAYSIDE SYSTEMS

3.8.1 AT SCENE PROCEDURES

Upon arrival at the accident scene, the responding Wayside Systems representatives shall report to the OSC and shall be responsible for the following tasks as applicable:

a.) Inspect the integrity of infrastructure and systems as it pertains to their discipline.
b.) Make and implement recommendations to the OSC in regard to their specialty, for expediting restoration of normal revenue service.

3.8.2 FOLLOW UP ACTIVITIES

As part of the follow-up activities, the Wayside Systems department is responsible for:

a.) Document the findings from the accident and any repairs performed on any components or systems.
b.) Providing previous inspection and maintenance activity records on Wayside Systems equipment that are applicable to the incident, such as Preventative Maintenance (PM) records for warning devices for accidents at a grade crossing, or PM records for track for a mainline derailment.

3.9 Accident Reporting Requirements

The safety department produces two different types of reports for CPUC reportable accidents, the "60 Day Report", and the "CPUC MINOR EVENT REPORT".

As part of an agreement made by the CPUC and the ROAR Committee in 2007, which was documented in the ROAR Committee Meeting minutes, the table below was established to identify which of the two above reports will be submitted based on the incident thresholds. Also covered in that discussion were Incidents regarding, "Rail Controlled Transit Property", which were agreed as being defined as any collision occurring on the right-of-way between a moving train and a person, vehicle or object.

The CPUC MINOR EVENT REPORT will also be used by Metro to report incidents involving attempted suicides.

Rail Incident Thresholds

60 Day Report	CPUC MINOR EVENT REPORT
• Fatality • Serious Injury to 1 or more people *,** • Mainline Derailment • Mainline Collision between Rail Vehicles • Evacuation Due to Life Safety • Substantial Damage	• Collision minor/no injury • (2) or more injuries/transported on board train • Yard Collisions incidents

* Does not include persons onboard the train
** Serious as defined by the FTA definition

3.9.1 Accident Report Revisions

The Safety Department will make every attempt to collaboratively work with the CPUC regarding Commission Comments with respect to submitted Accident Reports.

3.9.2 CPUC MINOR EVENT REPORT- Page 1 of 2

CALIFORNIA PUBLIC UTILITIES COMMISSION
MINOR EVENT REPORT
(Not to be used for Fatalities or Serious Injuries[1])

REPORTED TO CMC (Yes ☐ / No ☐) **REPORTED TO NTD (Yes ☐ / No ☐) (NTD # _____)**

RAIL TRANSIT AGENCY:					
LOCATION:		TRAIN/CARS #:	TRAIN DIRECTION OF TRAVEL:		NO. OF NON-SERIOUS INJURIES:
LIGHTING (DAY/NIGHT/DUSK/DAWN):	WEATHER:	DATE:	TIME:	DESIGN SPEED:	ESTIMATED SPEED AT TIME OF EVENTS:
COMMISSION HIGHWAY-RAIL GRADE CROSSING NUMBER (IF APPLICABLE):					

COLLISION WITH A MOTOR VEHICLE	YES ☐	NO ☐	N/A ☐
COLLISION WITH AN OBJECT	YES ☐	NO ☐	N/A ☐
COLLISION WITH A PERSON	YES ☐	NO ☐	N/A ☐
YARD DERAILMENT	YES ☐	NO ☐	N/A ☐
OPERATOR'S REPORT AVAILABLE	YES ☐	NO ☐	N/A ☐
SUPERVISOR'S REPORT AVAILABLE	YES ☐	NO ☐	N/A ☐
GRADE CROSSING COLLISION	YES ☐	NO ☐	N/A ☐
GATED CROSSING	YES ☐	NO ☐	N/A ☐
TRAFFIC SIGNAL CONTROLLED CROSSING	YES ☐	NO ☐	N/A ☐
UNCONTROLLED CROSSING	YES ☐	NO ☐	N/A ☐
PEDESTRIAN CROSSING	YES ☐	NO ☐	N/A ☐
OPERATOR TESTED FOR D&A	YES ☐	NO ☐	N/A ☐
TRANSIT VEHICLE OUT OF SERVICE	YES ☐	NO ☐	N/A ☐
SUBSTANTIAL DAMAGE[2]	YES ☐	NO ☐	N/A ☐
VIDEO/AUDIO AVAILABLE FOR REVIEW	YES ☐	NO ☐	N/A ☐
RULE(S) VIOLATION	YES ☐	NO ☐	N/A ☐
TOW AWAY	TRAIN ☐	VEHICLE ☐	N/A ☐

[1] 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 nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second or third-degree burn(s), or any burns affecting more than 5 percent of the body surface.

[2] Substantial damage is any physical damage to transit or non-transit property including vehicles, facilities, equipment, rolling stock, or infrastructure.

Substantial damage includes damage which adversely affects the structural strength, performance, or operating characteristics of the vehicle, facility, equipment, rolling stock, or infrastructure requiring towing, rescue, onsite maintenance, or immediate removal prior to safe operation.

3.9.2 CPUC MINOR EVENT REPORT– Page 2 of 2

DESCRIPTION OF THE EVENTS / INVESTIGATION FINDINGS (INCLUDE PHOTOGRAPHS IF APPLICABLE):

PROBABLE CAUSE:

CONTRIBUTING FACTORS:

RECOMMENDATIONS:

CORRECTIVE ACTION PLAN: (YES ☐ NO ☐) RTA's CAP #:	ACTION	SCHEDULE	DEPARTMENT/INDIVIDUAL RESPONSIBLE

PHOTOGRAPHS (IF APPLICABLE):

3.9.3 CPUC 60 Day REPORT

The CPUC 60 Day Report will include the following sections as applicable to the incident:

LACMTA
Corporate Safety

SUMMARY

INJURIES AND DAMAGE

EMERGENCY RESPONSE

FINDINGS

CONCLUSIONS
PROBABLE CAUSE

CONTRIBUTORY FACTORS

RECOMMENDATIONS

CORRECTIVE ACTION PLAN

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix G: Bus Accident Investigation Procedures (Bus AIP)

Metro

Version 1.0 issued July 1, 2020

The Incident Investigation & Reduction Procedure Manual

Metro™

Prepared by
Operations Central Instruction

TABLE OF CONTENTS

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I. INTRODUCTION

This manual was formally known as the Accident Investigation Procedure Manual. It has been revised to increase emphasis on accident prevention and update procedures to include systems new to Metro. Changes were made with the collaborated efforts of numerous Operations personnel from the Transportation Divisions, Bus Operations Control (BOC), Operations Central Instruction (OCI), Risk Management, Corporate Safety, etc.

Accident/Incident investigation is a fundamental element of Metro's safety program. The role of the investigation procedure is to identify, locate, and otherwise determine the root cause of the incident and reduce errors which allow accidents to occur. Reducing these system errors or conditions which allow accidents to occur is of extreme importance to every individual at Metro. At the very least, human suffering, injury, and property damage may be reduced as a direct result of the investigation process. Ultimately, it reduces expenses that need to be allocated to settle claims for injury and repair damages. These monies could otherwise be redirected to maintaining service or providing our customers and operators with a safer more effective operating environment. Reducing the conditions and causes of accidents will benefit everyone.

This manual seeks to classify accidents into two categories: **Avoidable or Unavoidable**. Accidents classified in this manual are for the purpose of establishing whether or not the operator of the Metro vehicle could have taken reasonable action to avoid an accident. The determination of ability to avoid an accident is based on standards established by the Transportation Safety Institute (TSI).

The application of these standards does not establish nor seek to establish any degree of legal liability that may or may not exist with respect to the accident. There may be occasions when an operator is not legally liable for an accident deemed to be "Avoidable."

"Avoidable" accidents will be classified as such only after an investigation determines the operator of the Metro vehicle "could have taken reasonable action that may have prevented the accident from occurring."

"Unavoidable" accidents will be classified as such only after an investigation determines the operator of the Metro vehicle "could not have taken <u>any</u> reasonable action to prevent the accident from occurring."

II. PURPOSE

The purpose of this manual is to establish consistent procedures to investigate accidents at all Metro Bus Operations facilities leading to the prevention of future accidents from occurring. The manual sets forth the roles and responsibilities of Metro staff at all levels. Accountability and responsibility at each step of these procedures will be essential to ensure proper investigations, training, and discipline. Most accidents investigations will be completed within 30 days and recommendations, as applicable, for prevention will be developed based on the investigation reports.

III. RESPONSIBILITIES

Various corporate business units have oversight and direct accountability for the implementation of the procedures contained herein. This section of the manual defines those responsibilities.

1. The Director of Corporate Safety has oversight over all accident reduction procedures. Corporate Safety will insure that strategies for accident reduction will be widely disseminated throughout the organization. It is also the responsibility of Corporate Safety to maintain the Vehicle Accident Monitoring System (WEBVAMS) and Transitsafe™. (Please see Reference document "XI-A." Transitsafe™ Procedures).

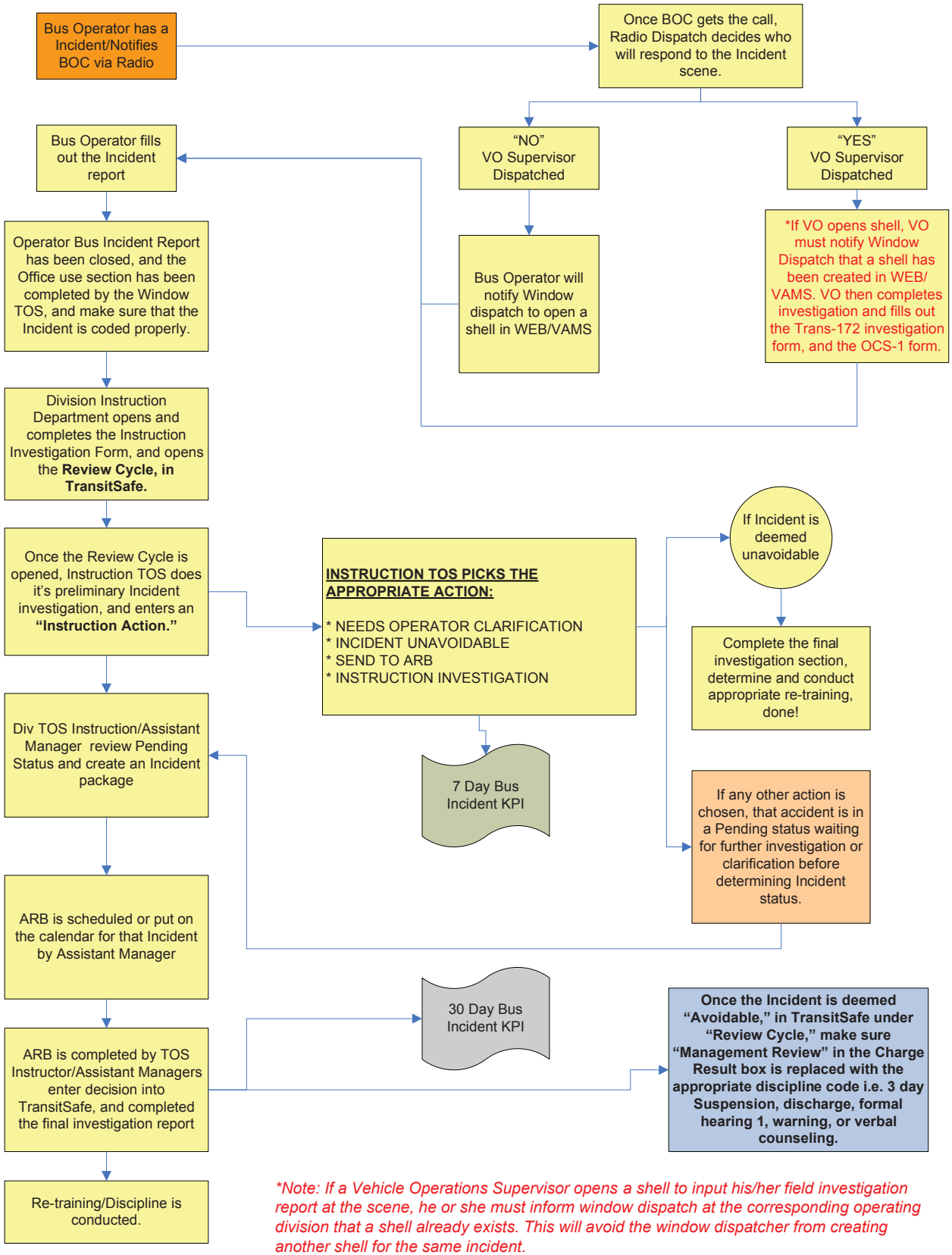
2. The Director of Operations Central Instruction (OCI) has oversight of accident reduction training, the Operator's Rulebook & SOP, and insures compliance with industry safety practices. (Please see Reference document "XI-C." Bus Operator Rule Rulebook & SOP's).

3. Transportation Managers at each division are responsible for ensuring that all accidents are investigated in accordance with the procedures set forth in this manual. They are also responsible for recommending accident reduction strategies to Corporate Safety that may arise from experience and internal investigations. It is the responsibility of each division to initiate the accident investigation procedure by entering relevant data (shell) into the Vehicle Accident Monitoring System (VAMS) which allows for the operator to complete the accident report.

4. Vehicle Operations (VO) has oversight over field investigation of all accidents involving Metro vehicles, property and employees. Timely submission of reports, pictures and all evidence collected at the scene is the responsibility of VO as well as a responsibility to follow up with any safety concerns identified. A VO Supervisor can initiate the shell process but must notify the effected division to avoid duplication.

5. Bus Operations Control (BOC) has oversight of all communication at accident scenes and coordination among multiple departments and agencies. Timely notification to VO, the affected division and any and all relevant emergency personnel is the responsibility of BOC as well as the timely and thorough documentation of the incident.

IV. BUS INCIDENT INVESTIGATION FLOW CHART



**Note: If a Vehicle Operations Supervisor opens a shell to input his/her field investigation report at the scene, he or she must inform window dispatch at the corresponding operating division that a shell already exists. This will avoid the window dispatcher from creating another shell for the same incident.*

V. INCIDENT INVESTIGATION PROCEDURES

The incident/accident investigation process begins when the operator reports the incident/accident to Bus Operations Control (BOC). Once notification is received, BOC notifies a VO Supervisor of the incident. The first VO Supervisor at the location is responsible for conducting the on scene investigation.

During the operator's workday or prior to the conclusion of the workday, the operator inputs his/her incident report into Transitsafe™ at the Division. While not addressed directly here, the VO Supervisor response to the accident/incident scene is critical. The VO Supervisor must collect (but is not limited to) a statement from the operator concerning the incident, a statement from the other party if possible, photographs of the vehicles or property involved, photographs of the scene, request brake tests where appropriate, as well as interact with other local authorities and make efforts for service restoration. If necessary, the operator will be taken for a drug screen before returning to the division to complete necessary paperwork. (Please see Reference document "XI-D." for Metro's HR Drug and Alcohol Policy and Procedures.)

V- A. Window TOS Duties & Responsibility

The Window Transit Operations Supervisors (TOS) are responsible for the processing of all accident/incident, and/or miscellaneous reports turned in by Division Transportation personnel. The initial copy of the Safe-3, the printed summary report, running board, copies of operator's CDL, medical card and VTT are the responsibility of the Window TOS. The Safe-3 and attendant documents must be reviewed by the Window TOS before closing the accident report in Transitsafe™. In the event the Window TOS is not able to assist the operator, the Manager or Assistant Transportation Manager must be immediately notified.

All reports of accidents/incidents must be completed and filed in Transitsafe™ on the day of occurrence, except where there is an explainable emergency that prevents the employee from completing the report on that day. Where an emergency exists and the report cannot be completed and filed as required, it must be completed at the earliest possible opportunity after the "Incident." In the event of such an emergency, the Manager or Assistant Transportation Manager must be notified immediately and the reason for the delay documented.

All completed Accident/Incident reports are considered legal documents and should be viewed as such when the report is being processed to completion.

Window TOS must follow these procedures:

- *Before any shell is created, the Window TOS must question the operator to determine whether an accident report is required. The Window TOS must create a "shell' using the VAMS system. The shell is saved and then released to either the VAMS kiosk, or desktop computer.*
- *Obtain and copy the employee's driver's license, VTT and medical certificate for the accident file.*
- *After the employee completes his/her report, the Window TOS must review the report for clarity, accuracy, and completeness, before closing it. The report is then printed and signed by the operator.* ***Note, "Closing" a report means that the data provided can no longer be edited by the operator or the TOS. Any changes to the data can thereafter only be input (spelling) via a supervisor form.***
- *In a collision type accident, the operator must complete a diagram (page 2 of the printed report) showing the approximate location and direction of the vehicles at the time of the accident. The Window TOS must assign the proper accident code prior to closing Transitsafe™. A listing of the accident/incident codes is included in Reference document "B." Collision classification Reference Guide.*
- *All available courtesy cards must be attached to the package.*
- *The Operator's running board must also be attached to the package.*
- *An Equipment Damage Report (EDR) must be filed for every report regardless of accident type. This is now unnecessary. The person that does the EDR now has access to the form in Transitsafe™. We should only be inputting our data in Transitsafe™ and let maintenance finish the form, print and sign it.*
- *The all night Window TOS, using WEBVAMS, must print a copy of the Accident Summary report of all processed accident/incidents for the particular day and distribute to all Division Management and to the division's Instruction department.*
- *The Window TOS must check the sequence number and verify that all accidents were recorded and accounted for at the end of the day.*

V-B. Instruction Department's TOS Duties & Responsibilities

The Instruction TOS are responsible for completing a thorough investigation related to each and every incident/accident.

Instruction TOS must follow these procedures:

- *The Instruction TOS must gather the accident/incident reports from the previous day.*
- *Prior to processing the accident/incident, the Instruction TOS must review and verify that each package contains the pertinent information necessary to begin an investigation. The accident package must include, at a minimum, all pertinent items and documents (see Appendix 1).*
- *The Instruction TOS must prepare accident packages for distribution:*
  - *a. Risk Management (located at the USG Headquarters building) gets a copy of the accident and summary report.*
  - *b. Hertz Claims Management (HCM) gets a copy of the accident, summary, and copy of witness cards (originals? We have been sending the originals to HCM. Let us know if there is a change), operator running board, copy of operator license, VTT, and Medical, and ARB results.*
  - *c. Steno gets original accident report, summary report, witness cards, operator running board, copy of operator license, VTT, and Medical, and ARB results.*
  - *d. A copy of the accident/incident summary shall be placed in the Instruction Book.*
- *After reviewing the accident/incident package, the TOS may assign a "pending" status to accidents/incidents identified as requiring additional investigation.*
- *Accident/incidents recommended for a determination of "unavoidable" must be forwarded to an Assistant Transportation Manager, as well as the Transportation Manager, if required. All pedestrian related incidents must be reviewed by the Division Transportation Manager.*
- *Unavoidable accidents/incidents must be closed out in Transitsafe™ and then sent to the Steno for filing.*
- *Accidents identified as requiring further investigation to determine a classification of "avoidable" or "unavoidable" must be forwarded to the 1st Level Accident Review Board.*
- *Instruction TOS may access the status of accident/incident reports from WEB VAMS in the exception reports. Operators who are on long term leave, for example, who cannot be interviewed within the appropriate KPI time frame will be carried in the exception report as "LTS".*
- *The Supervisory Investigation portion of the accident report must be completed in Transitsafe™. Using the following guidelines: Employee Incident Closure – 1 day; Supervisor Incident Investigation – 7 days; Investigation and Final Report – 30 days from date of accident/incident. Certain accidents/incidents shall remain open beyond 30 days pending information pertinent to make a classification. These cases include (but are not limited to) incidents involving pedestrians or severe collision incidents that require additional agency input (e.g. CHP). A notation on the exception report shall be made when the specific incident has gone beyond the 30-day standard.*

Instruction Accident/Incident Investigation

The following is an outline of the Instruction Accident/Incident Investigation Procedure:

A. *Read accident reports (making sure that it is filled out correctly). Go into Transitsafe™ (office use), fill in appropriate boxes (description of accident, supervisor's badge number, bus number, operator's seniority, etc. and appropriate code).*

B. *Go into the field investigation section in Transitsafe™ print out road supervisor's report and photos if any. If not, check again in 72 hours.*

C. *Print the Incident Report from BOC (from ATMS mta_60).*

D. *Go into instruction investigation; fill out the four boxes (damage to bus, injury to operator if any and the next two is vehicle code violations).*

E. *Go into view fields. Scroll down and in the accident investigation box put in appropriate field (avoidable, unavoidable, send to accident review board or instruction investigation). If unavoidable fill out appropriate boxes (description of accident, facts, and actions taken).*

F. *Make copies of witness cards (translate as needed). Insure that a record is created for all witness confirmation calls.*

G. *Print <u>two</u> copies of accident report.*

   i. *If the accident is unavoidable, give the original along with the two copies to Steno.*

   ii. *If the accident requires further investigation, keep the original accident report. Send an email request to the BOC Assistant Manager(s) and the Assistant Transportation Manager for any DVR download request, include the date, time (30 min before and after accident time), bus number, name (operator), badge, and reason for request. (Some division staff may be able to send a fax directly to the facilities staff to perform the download without additional step for notification).*

H. *Record the email request in the video log book.*

I. *When DVR is received, make copy of receipt and store receipt in DVR book.*

J. *Go to the video log book, label each DVR received and put the DVR in appropriate accident folder.*

K. *View DVR to record the time on the video when the incident occurs. Print relevant images of the incident to include in the accident package.*

L. *Go into VAMS (reports). Run an exception report, making sure that the accidents are at the bottom of report (if not the boxes were not filled out).*

M. *Call witnesses. If at home or work; ask questions on witness form and get statement. If not at home or work, mark date and time called on copy of witness cards, Appendix 2.*

N. *As necessary, go to the scene of accident; take photos; take measurements and make a diagram of scene. (An example of an accident scene diagram is included in Appendix 3).*

O. *Print the diagram from computer program as drawn by the operator. The investigating TOS should also include an accident diagram of the scene. (See Appendix 4.)*

P. *Scan and import all supporting documents in the accident package into Transitsafe™.*

VI. 1ST LEVEL ACCIDENT REVIEW BOARD

Before any accident is assigned an "avoidable" status, a three-member, 1st Level Accident Review Board (ARB) must review it. The Board is comprised of one Instruction supervisor, one Line Instructor/Mentor and the Manager or Assistant Manager.

Probationary operators who are involved in accidents are not taken through this process. Their accident reports are reviewed by the Instruction TOS investigating accidents, and then given to the Assistant Transportation Manager for a determination of avoidability. In some cases, further investigation may be required before any charge is made.

The purpose of the ARB is to review the accident file and interview the operator as a means of clarifying the information in his/her report, and to determine the accident's avoidability. The review process also gives the operator an opportunity to ask questions, and to elaborate on their explanations of the "Incident".

It is recommended that all members of an ARB have a chance to review all documentation before the actual ARB is convened. ARB members must prepare their questions and/or areas requiring clarification before participating in the ARB. By being prepared, the ARB can better ascertain the factors contributing to the incident/accident and make a better determination as to avoid ability.

After all members of the ARB have submitted their independent written decisions, the Assistant Transportation Manager has the responsibility to review the ARB's determination and verify that all ARB members' decisions were substantiated by their written narrative using the rules and standard operating procedures. Within fourteen (14) working days, the operator must receive a written notification of the outcome of the ARB. If the accident was deemed avoidable, the Assistant Transportation Manager assesses discipline and schedules training following the proper guidelines outlined in this manual.

For those operators who are on extended leave, the ARB will be held as soon as possible after the operator returns back to duty.

For those operators who transfer to another division prior to the ARB, the division where the accident occurred will be the Control Division. The Control Division will be responsible to investigate and hold the ARB. It is incumbent on the Assistant Transportation Manager at the Control Division to ensure proper notification to the operator. If any discipline results, the division where the operator is working may assess the discipline provided that all documentation is provided to the new management.

VII. 2ND LEVEL ACCIDENT REVIEW BOARD

The Grievance Hearing Officer will allocate forty-five (45) minutes for 2nd Level Accident Review Boards. In the event parties are not adequately prepared to present their case at the time scheduled, the case may be rescheduled for a future date.

In order to be properly prepared at the hearing, upon receipt of the second-level hearing schedule, it is the responsibility of the Transportation Manager, Assistant Transportation Manager and respective Labor Relations Representative to meet and review cases to validate required Hearing Packet documents.

Two sets of Hearing Packets for each hearing should be provided to the Grievance Hearing Officer no later than one week prior to the scheduled date.

Transportation Managers and the Labor Relations Representative should ensure that all applicable supporting documents are available for the hearing. The Hearing Packet documents may include, but are not limited to:

1. 2nd Level Appeal Summary Letter
2. Notice of Hearing (if applicable)
3. Notice of Disciplinary Action
4. Notice of Training
5. HR Discipline, Training, Attendance, and Miss-out records
6. 1st Level Accident Review Board Decisions & notes
7. Accident report (Safe 3)
8. Witness Cards, reports and statements
9. Operator's Vehicle Condition Report
10. Brake Inspection Report (if applicable)
11. Vehicle Operations Supervisor's Report (Trans 172)
12. Damage Assessment Report (OCS 1)
13. Original photos
14. DVR and audio or visual recordings
15. Accident scene diagram or sketch
16. Police report (if applicable)
17. Attending Physician Statements (if applicable)
18. Laboratory Reports (if applicable)
19. EAP or SAP referral forms (if applicable)
20. Additional items related to this accident

VIII. POST ACCIDENT TRAINING

Training guidelines are established to inform and instruct employees on the proper methods to avoid collisions, passenger injuries, or pedestrian accidents. Operators involved in an accident coded Type 10 through 681 will be scheduled to receive a Line Ride within seven (7) working days of the date of the incident/accident. Accidents shall follow an 18 month training schedule established to prevent future occurrences. Training topics should include current laws and regulations, defensive driving, accident prevention, emergency procedures, or passenger loading and unloading. Lesson plans for training will be developed by OCI and monitored through the Operations Training Tracking System (OTTS).

The re-training program requires training for operators who are involved in accidents. Operators follow two separate training schedules, one for "unavoidable" accidents and one for "avoidable" accidents. Therefore, an operator who may be required to take multiple training if involved in several accidents.

Example:
Within 18 months, an operator is involved in 2 avoidable accidents and 2 unavoidable accidents. The operator will be required to take step 1 & 2 for unavoidable and step 1 & 2 for avoidable accidents.

TRAINING SCHEDULE

Training Steps	Unavoidable	Avoidable
1	Coaching & Counseling	One-on-One (BTW)
2	Line Ride	2 Day Classroom Instruction
3	1 Day Classroom Instruction	3 Day Combination Classroom/ BTW Instruction*
4	Line Ride with Counseling	
5	One-on-One (BTW)	
6	2 Day Classroom Instruction	
7	3 Day Combination Classroom/BTW Instruction*	
8	Executive Review	

*Fitness for Duty must be considered.

When an operator's record is such that there are a series of accidents/incidents a "fitness for duty" exam will be scheduled through Human Resources to evaluate whether or not there are other factors, e.g. failing peripheral vision or neurological issues that may interfere with the operators' ability to properly drive the bus.

IX. DISCIPLINE GUIDELINES

A. Bus Operators

The following guidelines will be followed when assessing discipline for accidents that occur within an eighteen (18) month floating period* :

1ST Avoidable accident – Written Warning
2ND Avoidable accident – Three (3) Day Suspension
3RD Avoidable accident – Formal Hearing

* If it is deemed that mitigating circumstances which indicate a variation from the above progressive discipline, management must present documentation to the employee in accordance with the Formal Hearing process.

If after being assessed discipline for a first avoidable accident, an operator has a subsequent avoidable accident, the operator shall be assessed the next level of discipline (3 day suspension). If an operator has been assessed the second level of discipline and the operator has another avoidable accident, the operator's record will be reviewed to determine if the 3rd avoidable accident falls within 18 months of the 1st accident. If the last accident occurred within 18 months of the 1st accident, the operator is subject to a Formal Hearing. If the last avoidable accident is not within the 18 month period, the operator will only be assessed discipline for the level of discipline appropriate for the number of avoidable accidents within those 18 months.

Mitigating circumstances are those factors which must be taken into consideration when determining the appropriate level of discipline such as:

1. Level of disregard for the rules and standard operating procedures
2. Length of service
3. Extent of personal injury or damage to equipment or property
4. Work record
5. Training record

It is incumbent upon management to determine if the severity of the accident warrants by passing one or more steps, which may result in a recommendation for severe discipline up to and including discharge.

Discipline is a process to change behavior and is not meant strictly to punish an operator for wrong-doing. It serves as a warning process in progressive steps that an operator is approaching a situation that may jeopardize his/her job. Hence, in addition to other duties being fulfilled by the Manager / Assistant Manager assessing discipline, it is imperative that the Operator be notified that this is the first, second or third avoidable accident. Should they have the next incremental accident/incident, they need to be notified, in writing, and preferably written out on the Disciplinary Action Form, that failure to improve will lead to progressive discipline up to and including discharge.

Once the determination is made to charge an operator with a specific incident, he/she should also be counseled and notified that there is an employee assistance program for issues or concerns outside of the job where someone can get help. Operators should be provided with the self-referral brochure at the time of counseling and charging for the incident. (See Section "C." below for detailed procedures).

B. Probationary/Student Bus Operators

In accordance with the Memorandum of Understanding (MOU) established by OCI for probationary/student bus operators, a three (3) day suspension will be assessed for the 1st avoidable accident. At the discretion of management, a probationary/student may be discharged after the 1st avoidable accident if deemed to be caused by gross negligence or if the accident resulted in serious injury or major damage to vehicles or property. Student/probationary bus operators will be discharged after a 2nd avoidable accident whether or not the accidents are considered to be major.

C. Detailed Discipline Procedures

I. Unavoidable accidents will be sent to file & Transitsafe™ shall be updated with the record of decision.

II. Summary book is updated:
Green for UA and Red for Avoidable accidents.

III. Based on the SERIOUSNESS OF THE ACCIDENT (FATALITY, BLATENT NEGLIGENCE, ETC.) the Operator MAY BE SUBJECT TO TERMINATION.

IV. Accidents to be charged (applies to minor damage & possible injury type incidents alone for progressive discipline):

A. Assistant Manager prepares Notice of Disciplinary Action for 1st Avoidable Accident

1. Call Operator in and insure that the operator understands the progression of discipline as described in the contract.
   "This is your first avoidable accident in a less than 18 month period. If you have another avoidable accident in less than the 18 month period you may be subject to a possible suspension or termination depending upon the serious nature of the accident."
2. Assess a Warning for the first avoidable accident; update HRMIS.
3. Have the operator sign and acknowledge receipt of the discipline.
4. Set up operator for training required for the first step – 1 on 1.
5. Issue notice to mark-up and have mark-up sign that they have recorded the training.
6. Issue notice to operator and acknowledge by signing the form that the operator understands that they are required to attend the class and sign-in on the form provided at OCI. They are to be in full uniform and carry all operating credentials with them.
7. Attach to file copy of disciplinary action a copy of the HRMIS record denoting the accident.

B. Assistant Manager prepares Notice of Disciplinary Action for 2nd Avoidable Accident

1. Call Operator in and insure that the operator understands the progression of discipline as described in the contract.
   "This is your second avoidable accident in a less than 18 month period. If you have another (3rd) avoidable accident in less than the 18 month period you may be removed from service and required to attend a formal hearing. The outcome of the hearing could subject you to a possible more severe suspension or termination depending upon the serious nature of the accident."
2. Assess a 3-day suspension for the 2nd avoidable accident; update HRMIS.
3. Have the operator sign and acknowledge receipt of the discipline.
4. Set up operator for training required for the second step – Core Driving Skills.

5. Issue notice to mark-up and have mark-up sign.

6. Issue notice to operator and acknowledge by signing the form that the operator understands that they are required to attend the class and sign-in on the form provided at OCI. They are to be in full uniform and carry all operating credentials with them.

7. Attach to file copy of disciplinary action a copy of the HRMIS record denoting the accident.

8. Identify days off and place on the "Time Off Notice Form" the badge, operator name, and number of days assessed.

    a. Indicate that the suspension is for the 2nd avoidable accidents and indicate the date of the incident.

    b. Spell out the day and dates off and indicate a return to work date. *(e.g. Tuesday April 11, 2010, Wednesday, April 12, 2010, Thursday April 13, 2010,* ***RETURN TO WORK*** *Friday, April 14). The Assistant Manager shall sign and date the time off slip.*

    c. Have the Operator acknowledge receipt of the Time-Off Notice by placing initials under the Assistant Manager's signature.

    d. Provide a copy and have Mark-up acknowledge receipt of the notice.

C. Assistant Manager prepares Notice of Disciplinary Action for 3rd (or more) Avoidable Accident(s)

1. Preparing hearing notice and follow notification and time requirements spelled out in Article 27 of the contract.

2. When issuing Notice of Formal Hearing and attached package of documentation, statement of charge, operator record, etc., make sure that the Operator's current address and phone number is recorded on the form.

3. Hold the hearing as scheduled with the UTU representative and the Operator.

4. Make the determination of the appropriate discipline to apply.

V. Appeal of Decision to 2nd Level Review

A. Operators have a right to appeal discipline applied to a second level Accident Review Board

B. The second level ARB comprises the charging Manager or Assistant Manager, UTU Representative, the Operator involved, and the MTA hearing officer

C. Hearing Appeal Letter and Material prepared by Charging Manager or Assistant Manager

1. Notify Operator of the date that the 2nd Level Hearing is to be held. The notification should also require that the Operator fill out a miscellaneous stating whether or not they will attend the proceedings. Even though this is largely a Union responsibility it often helps in making the determination either to proceed with the hearing or to reschedule based on the expressed desire of the operator involved to attend.

2. Hearing Letter
    a. Statement describing incident date, vehicle involved.
    b. Include results of the First Level ARB and the rationale used by the members of the ARB.
    c. Cite rules that were violated as part of the justification and that constitute the charge.
    d. Indicate that staff met with the Operator, reviewed the accident and indicate why the accident was charged.
    e. Provide the following materials as part of the package:
        i. Copy of Operator Accident Report.
        ii. Copy of Operator License, credentials, etc.
        iii. Copy of paddle.
        iv. Copy of Notice of Disciplinary Action form for this incident.
        v. Copy of Time off.
        vi. Notice.
        vii. Copy of Training.
        viii. Copy of ARB FIRST LEVEL ACCIDENT REVIEW BOARD DECISION FORM for each ARB member.
        ix. Copy of ARB FIRST LEVEL REVIEW BOARD NOTES for each ARB member.
        x. Copy of Notice to Operator for FIRST LEVEL ACCIDENT REVIEW BOARD.

xi. Copy of diagrams, pictures, video, witness statements, police reports and other information gathered as a result of the investigation.

xii. Copy of Vehicle Operations Supervisor Report.

xiii. Copy of Operator's vehicle condition card report.

xiv. Copy of Police Report, if available.

xv. Copy of the Operators HRMIS record.

xvi. Copy of the ARB Package review and cover sheet checklist.

xvii. Copy of Equipment Damage Report, if available.

VI. Post 2nd Level ARB

A. Depending on the outcome of the hearing you may be sustained or the decision may be reversed.

B. If the decision is reversed, update the HRMIS record as well as Transitsafe™.

C. Send e-mail confirmation to the Hearing Officer that the change has been made. Retain a copy of the transmittal for your record.

X. KEY TERMS

For a complete listing of transit terms refer to the Bus Operator Rulebook & SOPs.

ACCIDENT:
An unplanned incident involving Metro vehicles, property, or employees that results in actual or potential damage to people, property, or vehicles (e.g. collisions, passenger injuries, pedestrian injuries).

AVOIDABLE:
An accident that is classified as such only after an investigation determines the operator of the Metro vehicle could have taken reasonable action that may have prevented the accident from occurring in accordance with Metro's established rules, SOPs, and policies.

BUS OVER LINE (BOL):
A Metro training practice of providing directions and safety information to the bus operators on established routes for the purpose of qualifying them on the route/line.

COLLISION:
An accident involving a Metro vehicle and other vehicles, property, or pedestrians.

DEFENSIVE DRIVING TRAINING:
Training aimed at providing information about the methods to avoid accidents by anticipating unforeseen incidents.

INCIDENT:
(See the definition for Accident).

LINE RIDE:
A method used by Certified Instructors to observe, instruct, and document bus operators' performance while in revenue service.

1 ON 1 TRAINING:
A training method of observation and training by Certified Instructors to evaluate and provide instruction to bus operators while operating a bus.

UNAVOIDABLE:
An accident that could not have been prevented by reasonable actions.

XI. REFERENCES

A. Transitsafe™ procedures

B. Collision Classification Reference Guide

C. Bus Operator Rulebook & SOPs

D. HR Drug & Alcohol Policy

XII. ATTACHMENTS

A. Important Forms

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PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix H: Rail Transportation Instruction Training Matrix

Metro

Version 1.0 issued July 1, 2020

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
GENERAL CLASSES						
New Equipment/System Training	Train Operators/ RTOS'	Introduction to new equipment, system extensions, system modifications, new lines, procedural changes, etc.	Training includes: • Identification of new or modified function, equipment or procedure certification	Dependent on scope of new systems, equipment and procedures	One Time	Additional Qualification **Prerequisite:** Prior certification on line, vehicle or pre-modified equipment
Post-Accident/ Incident	Train Operators/ RTOS'	Job specific training focuses on the incident or accident.	Retraining may include: • Equipment Operation • Rules and Procedures Mainline/Yard Operation	2 – 8 Hours	One Time	Verification of Rules and SOP's
ProTran	Rail Personnel/ Contractors	Train employees on ProTran equipment and requirements.	Training includes: • Equipment & Set Up • Rules and Procedures	1 Hour	One Time	Required to emphasize Metro's Rules & SOP's
Radio Class	Rail Personnel/ Contractors	Train personnel to communicate with the Proper Authority.	Training includes: • Equipment • Rules & Procedures • Practical exercise	1 Hour	One Time	Rule Adherence
Rail System Safety, LR & HR	Rail Employees, Contractors, Outside Agencies	Safety training for personnel working within the Metro Rail System on Light and Heavy Rail lines. Training may be incorporated into other training programs.	Training includes: • Rules & Procedures • Electronic Device Policy • High voltage hazards • Personnel on the ROW • Terrorism awareness • Vehicle movement	2 Hours	Once every 24 months	Required by CPUC, GO 143-B, Section 13.03
Rail Transit Sustainability (RTS)	Train Operators and RTOS'	Training review of rules and procedures for Train Operator Certification and DOT Verified (VTT) compliance and Sustaining safe operations in Rail Transit delivery.	Review of rules, procedures & policies: • Rail Safety & WWP • Electronic Video Monitoring • Rail Signal compliance • ADA, Customer Service • Defensive Operation • Vehicle Troubleshooting	9 Hours	Annual	Train Operator Recertification and DOT BP License Requirement and CEO mandated safety training. **Prerequisite:** Train Operator Certification

REV: 01-17-2020

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Rail Transit Training	Train Operators and RTOS'	Training review of rules and procedures for Train Operator Certification and DOT verified (VTT) compliance.	Review of rules, procedures & policies: • Rail Safety, WWP • ADA, Customer Service • Defensive Operation • Vehicle Troubleshooting • 1-on-1 as needed	9 Hours	As approved by RTI Director	Train Operator Recertification and DOT BP License Requirement **Prerequisite:** Train Operator Certification
Remedial Training	Train Operators and RTOS'	To review procedures and functions of current job function. Emphasize areas of deficiency.	Training includes: • Overview of job responsibilities • Monitor and Evaluate for job proficiency • Retrain and Test	4 hours – 5 days	As Requested	Additional Qualification
Return To Work (RTW)	Train Operators and RTOS'	Training review of rules, procedures and responsibilities of job specification.	Training may include: • Physical Agility • Sign-for documents • Rules and Procedures • Train & Yard Operation • Vehicle Troubleshooting • Signal Test • Classroom, OJT	Abs 60 Days = 8 hrs. Abs 90 Days = 16 hrs. Abs > 90 days = 1 – 3 weeks	One Time	RTOS or Train Operator Recertification **Prerequisite:** RTOS or Train Operator certification
Rule Book	Rail Personnel	Introduction to the Metro Rail System Book of Operating Rules and Procedures for new rail employees.	Review rules and procedures; rule book format; emphasis on rail employee responsibility and safety. How to properly update rule book and procedures.	1 Hour	One Time	Rule Adherence
Wayside Worker Protection (WWP)	All Wayside Employees (Employees, Contractors and Outside Agencies)	Safety training for personnel working on the ROW of any Metro Rail Line. Training may be incorporated into other training programs.	Training includes: • Rules and procedures • Protection of personnel from vehicle movement • Hand/Audible Signals • Types of On-Track Protection • Flag set-up • Documentation	4 hours	Once	Required by CPUC, GO 175 **Prerequisite:** Rail System Safety LR & HR

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Wayside Worker Protection Recertification	All Wayside Employees (Employees, Contractors and Outside Agencies)	Safety training for personnel working on the ROW of any Metro Rail Line. This includes renewal of Rail System Safety Certification.	Training includes: • Rules and procedures • Protection of personnel from vehicle movement • Hand/Audible Signals • Types of On-Track Protection • Flag set-up • Documentation • Rail System Safety	4 hours	Once every 24 months	Required by CPUC, GO 175 **Prerequisite:** Rail System Safety LR/HR and Wayside Worker Protection Certification
CCTV OBSERVERS						
Closed Circuit Television Observers Basic Training (CCTV BASIC)	CCTV Observers/ CCTV Observer Supervisors	Train new CCTV Observers in required job functions.	Training includes: • Station Familiarization • Safety Hazards • Rules and SOPs • Emergency Notifications • Station Familiarization • ROC Equipment Training	5 Weeks Total 2 weeks (class & field) 3 weeks (OJT)	One Time	CCTV Observer Certification **Prerequisite:** NONE
FIRST RESPONDERS						
Fire Department Safety Training	Fire Department Personnel	Rail familiarization for Fire Department personnel.	Training includes: • Rail System Safety • Emergency Procedures • Agency Notification • Vehicle training • May include Station & EMP training	4 – 8 Hours	One Time	Rail Familiarization
Law Enforcement Safety Training	Law Enforcement Personnel: LAPD, LASD, LBPD	Rail familiarization for Law Enforcement personnel.	Training includes: • Rail System Safety • Emergency Procedures • Agency Notification • Approved videos of past incidents • May include vehicle & station familiarization	4 – 8 Hours	One Time	Contract & Safety Requirements

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
RTOS - GENERAL						
RTOS Basic Training	New RTOS	Train new RTOS with the basic concepts and responsibilities on being a supervisor.	Training includes: • RTOS Expectations • Metro Policies • Training Requirements • System Access/E-mail	1 Week	One Time	Additional Qualification
Technical Field Training (TFT)	New RTOS	Provide RTOS with system and equipment familiarization on all Metro Rail Lines.	Training includes: • Equipment & Systems • EMP/Ventilation • Classroom and field	2 Weeks	One Time	Prerequisite for RTOS Basic classes **Prerequisite:** NONE
RTOS - CONTROLLER						
Controller Basic, Core Training	RTOS	Train new Controllers for the Blue/Expo, Gold, Green, or Red Line.	Training Includes: • Rules and Procedures • Equipment & Systems • Mainline Operation • Failure Management • Emergency Response • Notification & Documentation • Traction Power • WWP	2 Weeks	One Time	Prerequisite for Controller Certification **Prerequisite:** Technical Field Training (TFT)
Controller Basic, OJT Training	RTOS	Train new Controllers with hands on experience by working 1-on-1 with a Certified Controller.	Training Includes: • Comm. Control exp. • Train Control • Failure Management • Setting on/off Hi-Rails • Documenting all work at the console • Implementing WWP • Traction Power Procedures • Ventilation Procedures • Line Specific training	8 Weeks	One Time	Controller Certification (On 1 Line) **Prerequisite:** Controller Basic, Core Training

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Controller Cross Training, Blue/Expo Line or Gold Line	Controller	Train a qualified Controller on the Blue/Expo Line.	Training includes: • SCADA system • Train Routing • Equipment & Systems • Ventilation Response • Alarm Response	3 Weeks	One Time	Blue/Expo Line or Gold Line Controller Certification **Prerequisite:** Current Controller Certification
Controller Cross Training, Green Line	Controller	Train a qualified Controller on the Green Line.	Training includes: • SCADA system • CTC System • Train Routing • Equipment & Systems • Alarm Response	2 Weeks	One Time	Green Line Controller Certification **Prerequisite:** Current Controller Certification
Controller Cross Training, Red/Purple Line	Controller	Train a qualified Controller on the Red/Purple Line.	Training includes: • TRACS system • Train Routing • Equipment & Systems • Ventilation • Fire Life Safety • Alarm response	4 Weeks	One Time	Red Line Controller Certification **Prerequisite:** Current Controller Certification
Controller Recertification	Controller	Review procedures and functions of RTOS Controller.	Review & Test: • Controller SOP's • Equipment & Systems • Failure Management • Emergency Response	4 – 8 Hours	Once Every 2 Years	Controller Certification **Prerequisite:** Previously Certified Controller
RTOS- FIELD						
Field Supervisor Training	RTOS	Train RTOS on duties of Field Supervision and familiarization with Metro System.	Training includes: • Field Supervisor SOP's • Equipment & Systems • EMP/Ventilation • Elevators/Escalators • Mainline Response • 1-on-1 w/Instructor & OJT	1 Week OJT per line	One Time	Field Supervisor Certification **Prerequisite:** Technical Field Training (TFT)

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
RTOS - YARD						
Yard Controller, Basic Training	RTOS	Train RTOS on duties and responsibilities of Yard Controller.	Training Includes: • Rules and Procedures • Equipment & Systems • Failure Management • HASTUS • Emergency Response • WWP • Notification & Documentation	1 Week		Yard Controller Certification **Prerequisite:** Technical Field Training (TFT)
Yard Controller, HASTUS Training	RTOS	Train RTOS on basics of HASTUS.	Training includes: • Icons & Functions • Processing an absence • Splitting an assignment • Processing OT & miss outs • Printing reports for pay package	1 Week	One Time	Additional Qualification
Yard Controller – Windows Training	RTOS	Train RTOS on duties and responsibilities of Yard Controller.	Training includes: • Yard Operations • Implementing Yard Allocation • 1-on-1 with OJT	8 Weeks	One Time	Yard Controller Windows Certification **Prerequisite:** Yard Controller, Basic Training
Yard Controller – Mark-Up Training	RTOS	Train RTOS on duties of Mark-Up.	Training includes: • Marking the Board • HASTUS • 1-on-1 with OJT	3 Weeks	One Time	Yard Controller Mark-Up Certification **Prerequisite:** Yard Controller Windows Certification
TRAIN OPERATOR						
Train Operator Basic, Core Training	Train Operator	Prepare Bus Operators and RTOS to operate rail vehicles on the Metro Rail System.	Training includes: • Rules and Procedures • System Familiarization • Signal Systems • Rail System Safety LR & HR • WWP • Tour of Mainline	3 Weeks	One Time	Prerequisite for Train Operator Certification **Prerequisite:** NONE

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Train Operator Basic, Blue Line	Train Operator	Train student Train Operators and RTOS to operate LRV's on the Metro Blue Line.	Training includes: • Train Operator SOP's • Yard/Line Familiarization • Vehicle equipment (3 Vehicles) • Troubleshooting • Defensive Operations • Yard/Mainline Operation • 1-on-1 w/Instructor for 5-10 hours of operating time • 1-on-1 w/Line Instructor for 40 hours of operating time	6 -7 Weeks Total 3 Weeks (Classroom) 3 – 4 Weeks (1-on-1 OJT)	One Time	Train Operator Blue Line Certification **Prerequisite:** Train Operator Basic - Core
Train Operator Basic, EXPO Line	Train Operator	Train student Operators and RTOS to operate LRV's on the Metro Rail EXPO Line.	Training includes: ▪ Train Operator SOP's ▪ Yard/Line Familiarization ▪ Vehicle equipment (3 vehicles) ▪ Troubleshooting ▪ Defensive Operations ▪ Yard/Mainline operation ▪ 1-on-1 w/Rail Instructor for 5-10 hours of operating time ▪ 1-on-1 w/Line Instructor for 40 hours of operating time	6 -7 Weeks Total 3 Weeks (Classroom) 3 – 4 Weeks (1-on-1 OJT)	One Time	Train Operator Expo Line Certification **Prerequisite:** Train Operator Basic - Core
Train Operator Basic, Green Line	Train Operator	Train student Operators and RTOS to operate LRV's on the Metro Rail Green Line.	Training includes: ▪ Train Operator SOP's ▪ Yard/Line Familiarization ▪ Vehicle equipment (2 vehicles, ATO/MTO) ▪ Troubleshooting ▪ Defensive Operations ▪ Yard/Mainline operation ▪ 1-on-1 w/Rail Instructor for 5-10 hours of operating time ▪ 1-on-1 w/Line Instructor for 40 hours of operating time	6 -7 Weeks Total 3 Weeks (Classroom) 3 – 4 Weeks (1-on-1 OJT)	One Time	Train Operator Green Line Certification **Prerequisite:** Train Operator Basic - Core

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Train Operator Basic, Gold Line	Train Operator	Train student Operators and RTOS to operate LRV's on the Metro Rail Gold Line.	Training includes: ▪ Train Operator SOP's ▪ Yard/Line Familiarization ▪ Vehicle equipment (2 vehicles) ▪ Troubleshooting ▪ Defensive Operations ▪ 2 Yards/ Mainline operation ▪ 1-on-1 w/Rail Instructor for 5-10 hours of operating time ▪ 1-on-1 w/Line Instructor for 40 hours of operating time	6 -7 Weeks Total 3 Weeks (Classroom) 3 – 4 Weeks (1-on-1 OJT)	One Time	Train Operator Gold Line Certification **Prerequisite:** Train Operator Basic - Core
Train Operator Basic, Red/Purple Line	Train Operator	Train student Operators and RTOS to operate HRV's on the Metro Rail Red Line.	Training includes: ▪ Train Operator SOP's ▪ Yard/Line Familiarization ▪ Vehicle equipment (1 vehicle, ATO/MTO) ▪ Troubleshooting ▪ Defensive Operations ▪ Yard/ Mainline operation ▪ 1-on-1 w/Rail Instructor for 5-10 hours of operating time ▪ 1-on-1 w/Line Instructor for 40 hours of operating time	6 -7 Weeks Total 3 Weeks (Classroom) 3 – 4 Weeks (1-on-1 OJT)	One Time	Train Operator Red Line Certification **Prerequisite:** Train Operator Basic - Core
Train Operator Cross Training	Train Operator	To train operators who transfer to another rail line.	Training is line specific: • Rules & procedures • Vehicle Equipment • Yard Operation • Mainline Operation	3 – 4 Weeks	One Time	Train Operator Line Certification **Prerequisite:** Train Operator Basic - Core
Vehicle Troubleshooting	Train Operator	Review troubleshooting techniques. Training may be one on one or incorporated into a class.	Training includes: • Vehicle features • Indications • Troubleshooting	2 – 4 Hours	As Needed	Vehicle Certification

Rail Transportation Instruction Training Matrix

COURSE TITLE	ATTENDEES	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Line Instructor Program (LIP)	Train Operator	Train a qualified Train Operator on duties and responsibilities of a Line Instructor.	Training includes: • ARB Training • How to perform evaluations • Report writing • Review of Rules & SOPs • Troubleshooting techniques • How to Instruct effectively	1 week	One Time	Line Instructor **Prerequisite:** Previously certified Train Operator
WAYSIDE						
Hi-Rail Certification Course	All Wayside employees who operate or pilot Hi-Rail vehicles or On Track Equipment	Train Operator certification for Hi-Rail vehicles.	Train new Hi-Rail operator on: • Rules & Procedures • Safety Recertification • Mainline Operation • Radio Communications • Manual Block Procedures • Signal Training • Wayside Worker Protection	16 Hours	One Time	Hi-Rail Train Operator Certification **Prerequisite:** None
Hi-Rail Recertification Course	All Wayside employees who operate or pilot Hi-Rail vehicles or On Track Equipment	Train Operator recertification for Hi-Rail Vehicles.	Train includes: • Rules & Procedures • Safety Recertification • Radio Communications • Manual Block • Wayside Worker Protection • Signals review & test	8 Hours	Once Every 24 months	Hi-Rail Operator Recertification **Prerequisite:** Hi-Rail Certification

Appendix I: Operation Central Instruction Training Matrix

Operation Central Instruction Training Matrix

ATTENDEES	COURSE TITLE	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
New Hire PT Bus Operators	Basic Training	Train new Bus Operators to Obtain CDL Class BP Prepares bus operators to operate on the Metro Bus System	Training includes: ▪ Classroom Instruction ▪ Behind the Wheel-On Street ▪ Route Training ▪ Rule and SOPs ▪ Vehicle, Defensive Driving ▪ Bus Equipment Training	5 weeks	One Time	Certification Course Basic Training Program Prerequisite: CDL Class BP Permit
Full Time Bus Operators	Post-Accident/Incident	Job specific training focuses on the incident or accident	Training includes: ▪ Classroom Instruction ▪ Behind the Wheel-On Street ▪ Rule and SOPs ▪ Vehicle, Defensive Driving ▪ Bus Equipment Training	1 to 3 Days	As Needed	Verification of Rules and Operation Prerequisite: Bus Operator Certification
Line Instructors Bus Operators Only	Line Instructor Basic Training	DOT Instruction Certification Course for Bus Operators	Training includes: ▪ Classroom Instruction ▪ Instructing Behind the Wheel ▪ Instructing on Route Training ▪ Instructing Bus Equipment ▪ Vehicle, Defensive Driving Skills ▪ Acquire DOT & OCI Certification	5 Weeks	One Time	DOT Transportation Safety Institute & OCI Certification Course Prerequisite: 5years Bus Operator Experience
Bus Operator Return to Work (STS)&(LTS)	Bus Recertification/ Return To Work	Training review of rules, procedures and operation for Bus operator recertification. Return from leave over 90 days but less than two year.	Training includes: ▪ Classroom Instruction ▪ Vehicle Equipment ▪ Behind the Wheel ▪ Route Knowledge ▪ Rules and Procedures ▪ Yard Familiarization	5 Weeks	One Time	Bus Operator Recertification Prerequisite: Bus Operator Certification
Bus Operator Terminated Reinstatement	Basic Training	Training review of rules and procedures for Bus Operator recertification and DOT Verified Transit Training (VTT) compliance	Training includes: ▪ Classroom Instruction ▪ Behind the Wheel-On Street ▪ Route Training ▪ Rule and SOPs ▪ Vehicle, Defensive Driving ▪ Bus Equipment Training	5 Weeks	One Time	Rule & Policy Adherence Prerequisite: Current CDL
Bus Operator / Supervisors; CDL Only	Verification Transit Training Reinstatement (VTT)	Training review of rules and procedures for recertification and DOT Verified Transit Training (VTT) compliance	▪ Training includes: ▪ Vehicle Equipment ▪ Behind the Wheel on Street ▪ Rules and Procedures ▪ Yard Familiarization	5 Days	As Needed	Rule & Policy Adherence Prerequisite: Current CDL

Operation Central Instruction Training Matrix

ATTENDEES	COURSE TITLE	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Newly Hired Mechanics "C"	Basic CDL Training	Train Newly Hired Mechanics "C" CDL Class AP Vehicle Familiarization	Training includes: ▪ Classroom Instruction ▪ Behind the Wheel-On Street ▪ Rule and SOPs ▪ Vehicle, Defensive Driving ▪ Bus Equipment Training ▪ Obtain CDL Class AP	3 Weeks	Once	CDL License Course Basic Training Program Prerequisite: CDL Class AP Permit
Newly Hired Service Attendants	Basic Training	Train Newly Hired Service Attendants, Vehicle Familiarization	Training includes: ▪ Vehicle Equipment ▪ Behind the Wheel Yard Only ▪ Rules and Procedures ▪ Yard Familiarization	3 Days	One Time	Prerequisite: Class C License Vehicle Familiarization, Rule & Policy Adherence
Goodyear Personnel Contractor	Basic Training	Train Newly Hired, Contracted for Tire Maintenance Vehicle Familiarization	Training includes: ▪ Vehicle Equipment ▪ Behind the Wheel Yard Only ▪ Rules and Procedures ▪ Yard Familiarization	2 days.	One Time	Prerequisite: Class C License Vehicle Familiarization, Rule & Policy Adherence
Electrical Communications Tech (ECT) Personal	Basic Training	Job specific training focuses on Vehicle Familiarization only	▪ Training includes: ▪ Vehicle Equipment ▪ Behind the Wheel Yard Only ▪ Rules and Procedures ▪ Yard Familiarization	2 Days	One Time	Prerequisite: Class C License Vehicle Familiarization Rule & Policy Adherence
METRO Paint & Body Shop Personal	Basic Training	Job specific training focuses on Vehicle Familiarization only	▪ Training includes: ▪ Vehicle Equipment ▪ Behind the Wheel Yard Only ▪ Rules and Procedures ▪ Yard Familiarization	3 Days	One Time	Prerequisite: Class C License Vehicle Familiarization Rule & Policy Adherence
Rail Track & Power	Basic CDL Training	CDL Class A Vehicle Familiarization	Training includes: ▪ Classroom Instruction ▪ Behind the Wheel-On Street ▪ Vehicle, Defensive Driving ▪ Obtain CDL Class A	2 Weeks	One Time	CDL License Course Basic Training Program Prerequisite: CDL Class A Permit
Vault Truck Driver	Basic CDL Training	CDL Class B Vehicle Familiarization	Training includes: ▪ Classroom Instruction ▪ Behind the Wheel-On Street ▪ Vehicle, Defensive Driving ▪ Obtain CDL Class B	2 Weeks	One Time	CDL License Course Basic Training Program Prerequisite: CDL Class B Permit

Operation Central Instruction Training Matrix

ATTENDEES	COURSE TITLE	COURSE DESCRIPTION	LEARNING OBJECTIVES	DURATION	FREQ.	COURSE MANDATE
Transportation Operations Supervisor (Division & OCI Instruction)	Instruction Basic Training	DOT Instruction Certification Course for Supervisors	Training includes: ▪ Classroom Instruction ▪ Instructing Behind the Wheel ▪ Instructing on Route Training ▪ Instructing Bus Equipment ▪ Vehicle, Defensive Driving Skills ▪ Acquire DOT & OCI Certification	12 Weeks	One Time	Supervisor Certification Prerequisite: 5years Bus Operator Experience
Vehicle Operations Supervisors (VO)	DOT/TSI Fundamentals Bus Collision Investigation	Train new TOS VO to perform accident investigation and function as On-Scene Coordinators	Training includes: ▪ Classroom Instruction ▪ Field Supervisor Procedures ▪ Review of Control Priorities ▪ Transit Safe & VAMS ▪ Report Writing w/ Diagram ▪ Practical Exercise	1 Weeks	One Time	Supervisor Certification Prerequisite: None

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix J: State Safety Oversight Elements within PTASP

Metro

Version 1.0 issued July 1, 2020

Appendix J: State Safety Oversight Elements within PTASP		
	Element	**Section**
1	**Policy Statement**	**Metro PTASP Policy Statement**
2	**Goals and Objectives**	**Metro PTASP Policy Statement & 1.3 Safety Goals**
3	**Management Structure**	**Appendix A/B: Metro and Operations Organization Chart**
4	**PTASP changes**	**673.11 (5) Review and Update of PTASP**
5	**Implementing the PTASP**	**Metro PTASP Policy Statement**
6	**Hazard Management Program**	**673.25 Safety Risk Management**
7	**System Modification Review and 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, and Reporting**	**Appendix F: Rail Accident Investigation Procedures**
11	**Emergency Management Program**	**673.11(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 E: Operations and Maintenance Departments**
16	**Training and Certification**	**673.29(a) Safety Training Program**
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**

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix K: 49 CFR 673

Metro

Version 1.0 issued July 1, 2020

from March 1, 2016. The video is available at the following link: *https://www.youtube.com/watch?v=FBj5HRatwGA&feature=youtu.be.*

FTA also notes that, in advance of publishing an NPRM, FTA sought comment from the transit industry, including tribes, on a wide range of topics pertaining to safety and asset management through an ANPRM. In the NPRM, FTA asked specific questions about how today's rule should apply to tribal recipients and subrecipients of Section 5311 funds.

In light of the comments that FTA received from tribes in response to the NPRM, and in an effort to further reduce the burdens of this final rule, FTA is deferring regulatory action regarding the applicability of this rule to operators of public transportation systems that only receive Section 5310 and/or Section 5311 funds, including tribal transit operators. FTA is deferring action pending further evaluation of information and safety data to determine the appropriate level of regulatory burden necessary to address the safety risk presented by these operators.

Executive Order 13211 (Energy Effects)

FTA has analyzed this rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). FTA has determined that this rule is not a significant energy action under that Executive Order because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Therefore, a Statement of Energy Effects is not required.

Privacy Act

Any individual is able to search the electronic form of all comments received on any FTA docket by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, or other entity). You may review USDOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477).

Statutory/Legal Authority for This Rulemaking

FTA is issuing this final rule under the authority of section 20021 of MAP–21, which requires public transportation agencies to develop and implement comprehensive safety plans. This authority was reauthorized under the FAST Act. The authority is codified at 49 U.S.C. 5329(d).

Regulation Identification Number

A RIN is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN set forth in the heading of this document can be used to cross-reference this action with the Unified Agenda.

List of Subjects in 49 CFR Part 673

Mass transportation, Safety.

K. Jane Williams,

Acting Administrator.

■ For the reasons set forth in the preamble, and under the authority of 49 U.S.C. 5329(d) and 5334, and the delegations of authority at 49 CFR 1.91, FTA hereby amends Chapter VI of Title 49, Code of Federal Regulations by adding part 673 to read as follows:

PART 673—PUBLIC TRANSPORTATION AGENCY SAFETY PLANS

Subpart A—General

Subpart B—Safety Plans

Subpart C—Safety Management Systems

Subpart D—Safety Plan Documentation and Recordkeeping

Authority: 49 U.S.C. 5329(d) and 5334; 49 CFR 1.91.

Subpart A—General

§ 673.1 Applicability.

(a) This part applies to any State, local governmental authority, and any other operator of a public transportation system that receives Federal financial assistance under 49 U.S.C. Chapter 53.

(b) This part does not apply to an operator of a public transportation system that only receives Federal financial assistance under 49 U.S.C. 5310, 49 U.S.C. 5311, or both 49 U.S.C. 5310 and 49 U.S.C. 5311.

§ 673.3 Policy.

The Federal Transit Administration (FTA) has adopted the principles and methods of Safety Management Systems (SMS) as the basis for enhancing the safety of public transportation in the United States. FTA will follow the principles and methods of SMS in its development of rules, regulations, policies, guidance, best practices, and technical assistance administered under the authority of 49 U.S.C. 5329. This part sets standards for the Public Transportation Agency Safety Plan, which will be responsive to FTA's Public Transportation Safety Program, and reflect the specific safety objectives, standards, and priorities of each transit agency. Each Public Transportation Agency Safety Plan will incorporate SMS principles and methods tailored to the size, complexity, and scope of the public transportation system and the environment in which it operates.

§ 673.5 Definitions.

As used in this part:

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

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

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

Equivalent Authority means an entity that carries out duties similar to that of a Board of Directors, for a recipient or subrecipient of FTA funds under 49 U.S.C. Chapter 53, including sufficient authority to review and approve a

recipient or subrecipient's Public Transportation Agency Safety Plan.

Event means any Accident, Incident, or Occurrence.

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

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

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

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

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

Occurrence means an Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of a transit agency.

Operator of a public transportation system means a provider of public transportation as defined under 49 U.S.C. 5302(14).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Serious injury means any injury which:

(1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date 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.

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

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

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

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

Transit agency means an operator of a public transportation system.

Transit Asset Management Plan means the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital 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.

Subpart B—Safety Plans

§ 673.11 General requirements.

(a) A transit agency must, within one calendar year after July 19, 2019, establish a Public Transportation Agency Safety Plan that meets the requirements of this part and, at a minimum, consists of the following elements:

(1) The Public Transportation Agency Safety Plan, and subsequent updates, must be signed by the Accountable Executive and approved by the agency's Board of Directors, or an Equivalent Authority.

(2) The Public Transportation Agency Safety Plan must document the processes and activities related to Safety Management System (SMS) implementation, as required under subpart C of this part.

(3) The Public Transportation Agency Safety Plan must include performance targets based on the safety performance measures established under the National Public Transportation Safety Plan.

(4) The Public Transportation Agency Safety Plan must address all applicable requirements and standards as set forth in FTA's Public Transportation Safety Program and the National Public Transportation Safety Plan. Compliance

with the minimum safety performance standards authorized under 49 U.S.C. 5329(b)(2)(C) is not required until standards have been established through the public notice and comment process.

(5) Each transit agency must establish a process and timeline for conducting an annual review and update of the Public Transportation Agency Safety Plan.

(6) A rail transit agency must include or incorporate by reference in its Public Transportation Agency Safety Plan an emergency preparedness and response plan or procedures that addresses, at a minimum, the assignment of employee responsibilities during an emergency; and coordination with Federal, State, regional, and local officials with roles and responsibilities for emergency preparedness and response in the transit agency's service area.

(b) A transit agency may develop one Public Transportation Agency Safety Plan for all modes of service, or may develop a Public Transportation Agency Safety Plan for each mode of service not subject to safety regulation by another Federal entity.

(c) A transit agency must maintain its Public Transportation Agency Safety Plan in accordance with the recordkeeping requirements in subpart D of this part.

(d) A State must draft and certify a Public Transportation Agency Safety Plan on behalf of any small public transportation provider that is located in that State. A State is not required to draft a Public Transportation Agency Safety Plan for a small public transportation provider if that agency notifies the State that it will draft its own plan. In each instance, the transit agency must carry out the plan. If a State drafts and certifies a Public Transportation Agency Safety Plan on behalf of a transit agency, and the transit agency later opts to draft and certify its own Public Transportation Agency Safety Plan, then the transit agency must notify the State. The transit agency has one year from the date of the notification to draft and certify a Public Transportation Agency Safety Plan that is compliant with this part. The Public Transportation Agency Safety Plan drafted by the State will remain in effect until the transit agency drafts its own Public Transportation Agency Safety Plan.

(e) Any rail fixed guideway public transportation system that had a System Safety Program Plan compliant with 49 CFR part 659 as of October 1, 2012, may keep that plan in effect until one year after July 19, 2019.

(f) Agencies that operate passenger ferries regulated by the United States Coast Guard (USCG) or rail fixed guideway public transportation service regulated by the Federal Railroad Administration (FRA) are not required to develop agency safety plans for those modes of service.

§ 673.13 Certification of compliance.

(a) Each transit agency, or State as authorized in § 673.11(d), must certify that it has established a Public Transportation Agency Safety Plan meeting the requirements of this part one year after July 19, 2019. A State Safety Oversight Agency must review and approve a Public Transportation Agency Safety Plan developed by rail fixed guideway system, as authorized in 49 U.S.C. 5329(e) and its implementing regulations at 49 CFR part 674.

(b) On an annual basis, a transit agency, direct recipient, or State must certify its compliance with this part.

§ 673.15 Coordination with metropolitan, statewide, and non-metropolitan planning processes.

(a) A State or transit agency must make its safety performance targets available to States and Metropolitan Planning Organizations to aid in the planning process.

(b) To the maximum extent practicable, a State or transit agency must coordinate with States and Metropolitan Planning Organizations in the selection of State and MPO safety performance targets.

Subpart C—Safety Management Systems

§ 673.21 General requirements.

Each transit agency must establish and implement a Safety Management System under this part. A transit agency Safety Management System must be appropriately scaled to the size, scope and complexity of the transit agency and include the following elements:

(a) Safety Management Policy as described in § 673.23;

(b) Safety Risk Management as described in § 673.25;

(c) Safety Assurance as described in § 673.27; and

(d) Safety Promotion as described in § 673.29.

§ 673.23 Safety management policy.

(a) A transit agency must establish its organizational accountabilities and responsibilities and have a written statement of safety management policy that includes the agency's safety objectives.

(b) A transit agency must establish and implement a process that allows employees to report safety conditions to senior management, protections for employees who report safety conditions to senior management, and a description of employee behaviors that may result in disciplinary action.

(c) The safety management policy must be communicated throughout the agency's organization.

(d) The transit agency must establish the necessary authorities, accountabilities, and responsibilities for the management of safety amongst the following individuals within its organization, as they relate to the development and management of the transit agency's Safety Management System (SMS):

(1) *Accountable Executive.* The transit agency must identify an Accountable Executive. The Accountable Executive is accountable for ensuring that the agency's SMS is effectively implemented, throughout the agency's public transportation system. The Accountable Executive is accountable for ensuring action is taken, as necessary, to address substandard performance in the agency's SMS. The Accountable Executive may delegate specific responsibilities, but the ultimate accountability for the transit agency's safety performance cannot be delegated and always rests with the Accountable Executive.

(2) *Chief Safety Officer or Safety Management System (SMS) Executive.* The Accountable Executive must designate a Chief Safety Officer or SMS Executive who has the authority and responsibility for day-to-day implementation and operation of an agency's SMS. The Chief Safety Officer or SMS Executive must hold a direct line of reporting to the Accountable Executive. A transit agency may allow the Accountable Executive to also serve as the Chief Safety Officer or SMS Executive.

(3) *Agency leadership and executive management.* A transit agency must identify those members of its leadership or executive management, other than an Accountable Executive, Chief Safety Officer, or SMS Executive, who have authorities or responsibilities for day-to-day implementation and operation of an agency's SMS.

(4) *Key staff.* A transit agency may designate key staff, groups of staff, or committees to support the Accountable Executive, Chief Safety Officer, or SMS Executive in developing, implementing, and operating the agency's SMS.

§ 673.25 Safety risk management.

(a) *Safety Risk Management process.* A transit agency must develop and implement a Safety Risk Management process for all elements of its public transportation system. The Safety Risk

Management process must be comprised of the following activities: Safety hazard identification, safety risk assessment, and safety risk mitigation.

(b) *Safety hazard identification.* (1) A transit agency must establish methods or processes to identify hazards and consequences of the hazards.

(2) A transit agency must consider, as a source for hazard identification, data and information provided by an oversight authority and the FTA.

(c) *Safety risk assessment.* (1) A transit agency must establish methods or processes to assess the safety risks associated with identified safety hazards.

(2) A safety risk assessment includes an assessment of the likelihood and severity of the consequences of the hazards, including existing mitigations, and prioritization of the hazards based on the safety risk.

(d) *Safety risk mitigation.* A transit agency must establish methods or processes to identify mitigations or strategies necessary as a result of the agency's safety risk assessment to reduce the likelihood and severity of the consequences.

§ 673.27 Safety assurance.

(a) *Safety assurance process.* A transit agency must develop and implement a safety assurance process, consistent with this subpart. A rail fixed guideway public transportation system, and a recipient or subrecipient of Federal financial assistance under 49 U.S.C. Chapter 53 that operates more than one hundred vehicles in peak revenue service, must include in its safety assurance process each of the requirements in paragraphs (b), (c), and (d) of this section. A small public transportation provider only must include in its safety assurance process the requirements in paragraph (b) of this section.

(b) *Safety performance monitoring and measurement.* A transit agency must establish activities to:

(1) Monitor its system for compliance with, and sufficiency of, the agency's procedures for operations and maintenance;

(2) Monitor its operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended;

(3) Conduct investigations of safety events to identify causal factors; and

(4) Monitor information reported through any internal safety reporting programs.

(c) *Management of change.* (1) A transit agency must establish a process for identifying and assessing changes that may introduce new hazards or impact the transit agency's safety performance.

(2) If a transit agency determines that a change may impact its safety performance, then the transit agency must evaluate the proposed change through its Safety Risk Management process.

(d) *Continuous improvement.* (1) A transit agency must establish a process to assess its safety performance.

(2) If a transit agency identifies any deficiencies as part of its safety performance assessment, then the transit agency must develop and carry out, under the direction of the Accountable Executive, a plan to address the identified safety deficiencies.

§ 673.29 Safety promotion.

(a) *Competencies and training.* A transit agency must establish and implement a comprehensive safety training program for all agency employees and contractors directly responsible for safety in the agency's public transportation system. The training program must include refresher training, as necessary.

(b) *Safety communication.* A transit agency must communicate safety and safety performance information throughout the agency's organization that, at a minimum, conveys information on hazards and safety risks relevant to employees' roles and responsibilities and informs employees of safety actions taken in response to reports submitted through an employee safety reporting program.

Subpart D—Safety Plan Documentation and Recordkeeping

§ 673.31 Safety plan documentation.

At all times, a transit agency must maintain documents that set forth its Public Transportation Agency Safety Plan, including those related to the implementation of its Safety Management System (SMS), and results from SMS processes and activities. A transit agency must maintain documents that are included in whole, or by reference, that describe the programs, policies, and procedures that the agency uses to carry out its Public Transportation Agency Safety Plan. These documents must be made available upon request by the Federal Transit Administration or other Federal entity, or a State Safety Oversight Agency having jurisdiction. A transit agency must maintain these documents for a minimum of three years after they are created.

[FR Doc. 2018–15167 Filed 7–18–18; 8:45 am]

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PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Appendix L: National Public Transportation Safety Plan

Metro™

Version 1.0 issued July 1, 2020

FTA

FEDERAL TRANSIT ADMINISTRATION

National Public Transportation Safety Plan

January 2017

Version 1.0

U.S. Department of Transportation

Federal Transit Administration

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Table of Contents

Appendices

Acronyms and Abbreviations

APTA	American Public Transportation Association
DOT	Department of Transportation
FAST	Fixing America's Surface Transportation Act
FTA	Federal Transit Administration
MAP-21	Moving Ahead for Progress in the 21st Century Act
NTD	National Transit Database
National Safety Plan, NSP, Plan	National Public Transportation Safety Plan
NPRM	Notice of Proposed Rulemaking
NTSB	National Transportation Safety Board
PTSCTP	Public Transportation Safety Certification Training Program
Section 5329	Public Transportation Safety Program, 49 U.S.C. 5329
SGR	state of good repair
SMS	Safety Management System
SSO	State Safety Oversight
SSOA	State Safety Oversight Agency
TAM	Transit asset management

EXECUTIVE SUMMARY

MAP-21 (Pub. L. 112-141 (2012))[1] amended Federal transit law by authorizing a new Public Transportation Safety Program at 49 U.S.C. § 5329. Pursuant to Section 5329(b), the Public Transportation Safety Program must include a National Public Transportation Safety Plan to improve the safety of all public transportation systems that receive Federal transit funds.

Purpose of the National Public Transportation Safety Plan

The purpose of the National Public Transportation Safety Plan or National Safety Plan, is to guide the national effort in managing the safety risks and safety hazards within our Nation's public transportation systems. The National Safety Plan must include, at minimum, the following elements:

1. Safety performance criteria for all modes of public transportation (Chapter III),
2. The definition of the term "state of good repair" (Chapter III),
3. Minimum safety performance standards for public transportation vehicles used in revenue operations that are not otherwise regulated by any other Federal agency, and that take into account relevant recommendations of the NTSB and other industry best practices and standards (Chapter IV),
4. Minimum safety standards to ensure the safe operation of public transportation systems that are not related to vehicle performance standards, (Chapter IV), and
5. A safety certification training program (See description in Executive Summary on Page 8).

FTA is committed to developing, implementing, and consistently improving strategies and processes to ensure that transit achieves the highest practicable level of safety. FTA has adopted the principles and methods of SMS as the basis for enhancing the safety of public transportation in the United States. FTA will follow the principles and methods of SMS in its development of future iterations of the National Safety Plan, rules, regulations, policies, guidance, best practices and technical assistance.

SMS helps organizations improve upon their safety performance by supporting the institutionalization of beliefs, practices, and procedures for identifying, mitigating, and

[1] MAP-21 was superseded by the FAST Act, which was signed into law on December 4, 2015. Pub. L. 114-94.

monitoring safety risks. FTA will work with the industry to phase-in the implementation of SMS. Over the next several years, FTA will continue to utilize pilot projects to build the transit industry's understanding of SMS and help FTA to both identify areas where further guidance and technical assistance are needed, and build its own core safety capabilities and processes.[2]

The direction and guidance set forth in this Plan are intended to guide FTA's partners within the transit industry towards improving an already excellent safety record. FTA believes that this Plan represents a great opportunity to make a difference in transit safety. FTA expects to see measurable improvements in safety performance across the transit industry as the Safety Program matures.

The National Safety Plan is just one component of the Public Transportation Safety Program. In addition to this Plan, FTA is undertaking the following rulemakings to improve transit safety:

- ***Public Transportation Safety Program Rule*** - On August 11, 2016, FTA issued a final rule for the Public Transportation Safety Program[3] that establishes substantive and procedural rules for FTA's administration of the Safety Program. Importantly, the rule formally establishes SMS as the foundation for FTA's development and implementation for the Safety Program. In addition, the rule institutes due process mechanisms related to FTA's exercise of its safety oversight and enforcement authorities.
- ***State Safety Oversight Rule*** - On March 16, 2016, FTA issued a final rule for State Safety Oversight to strengthen States' authority to investigate rail transit accidents and oversee the safety of rail transit systems.
- ***Public Transportation Safety Certification Training Program Rule*** - The Safety Certification Training Program establishes a curriculum and minimum competencies for Federal, SSOA personnel and contractors who conduct safety audits and examinations of rail fixed guideway public transportation systems, and for designated transit agency personnel and contractors who are directly responsible for safety oversight of a recipient's rail fixed guideway public transportation

[2] For more information on SMS, please visit FTA's SMS webpage at http://www.fta.dot.gov/tso_15176.html.

[3] Docket No. FTA-2015-0009. The Public Transportation Safety Program Final Rule is available at https://www.gpo.gov/fdsys/pkg/FR-2016-08-11/pdf/2016-18920.pdf.

systems. The final rule for the Safety Certification Training Program replaces an interim program which became effective on May 28, 2015. For more information on safety training resources, visit https://safety.fta.dot.gov/cms/welcome.

- ***Public Transportation Agency Safety Plan Rule*** - This rule would establish requirements for recipients of Federal transit funds to develop public transportation agency safety plans. The plans would include the recipient's strategies for minimizing the exposure of the public, personnel, and property to unsafe conditions and include safety performance targets.
- ***Preventing Transit Worker Assaults Rule*** - The FAST Act requires FTA to issue an NPRM to establish "rail and bus safety standards, practices, or protocols" for "protecting rail and bus operators from the risk of assault." In the proposed rulemaking, the Secretary shall consider different safety needs of drivers of different modes, differences in operating environments, the use of technology to mitigate driver assault risks, existing experience, from both agencies and operators that already are using or testing driver assault mitigation infrastructure; and the impact of the rule on future rolling stock procurements and vehicles currently in revenue service.

Each component of the National Safety Program will work together to ensure that appropriate and adequate risk surveillance, monitoring, and intervention methods and practices are utilized to minimize risks through the strategic application of available resources.

Organization of the National Safety Plan

This National Safety Plan is comprised of four chapters and two appendices.

Chapter I Introduction: Chapter I discusses the need for the Plan and the status of safety performance within the transit industry.

Chapter II SMS Framework: Chapter II provides a framework for applying SMS to a transit agency.

Chapter III Safety Performance Management: Chapter III lays out FTA's strategic approach to safety performance. This chapter sets forth FTA's safety vision and mission and establishes safety performance measures[4] for all modes of public transportation,

[4] In this Plan FTA uses the term "performance measure" as a synonym for "performance criteria" which is used in statute at 49 U.S.C. § 5329(b)(1).

which are designed to monitor improvement of safety performance in day-to-day operations. This chapter also describes how FTA will collect and disseminate safety performance data; and, based on that data, set national goals for improving the transit industry's safety performance.

Chapter IV Managing Safety Risk and Assuring Safe Performance: Chapter IV provides information about the actions FTA has taken to improve transit safety performance, voluntary minimum safety performance standards for procurement of heavy and light rail vehicles and minimum performance standards for operations, and information about other sources of technical assistance.

Appendix A and B contain a Glossary and a Sample Safety Management Policy Statement, respectively.

Chapter I - INTRODUCTION

Our national well-being is dependent upon the provision of safe, efficient, and reliable public transportation. Every day, people use buses and trains to get to and from work, school, medical appointments, and to visit friends and family. Transit systems are a part of the fabric of our nation—weaving our urban and rural environments together and encouraging economic development.

In calendar year 2014, public transit systems across the nation provided 10.7 billion trips—the highest annual ridership number in 58 years—with the number of trips exceeding 10 billion for the seventh year in a row. There is reason to believe that this is just the beginning of a sustained period of growing demand for public transportation as the population of elderly individuals who will become reliant on public transportation increases and as more young people move to urban areas to have greater access to transit options. To keep pace with growing demand, transit operators will need to balance competing priorities to expand service, while continuing to operate existing service, replace and maintain existing capital assets, and ensure that operations are safe for their employees and the riding public.

Although transit is a relatively safe mode of travel, the statistical reality is that as transit ridership increases, data indicates that the total number of fatalities and serious accidents likely will also increase. For example, although transportation-related fatalities declined in the years 2002–2012 by approximately 25 percent, according to the U.S. Department of Transportation's Bureau of Transportation Statistics' (BTS) injury rates for transit modes have been trending upward since 2002.[5]

Now is the time to implement a new framework to support and complement the existing approach to public transportation safety, and to identify deficiencies and promote improvements in transit safety performance. The National Safety Plan will serve as FTA's key communication tool for this new safety approach.

This Plan sets forth a proactive approach to safety risk management that is outcome-focused and emphasizes safety performance. Traditionally, the transit industry has

[5] http://www.rita.dot.gov/bts/data_and_statistics/index.html.

made safety improvements reactively: a crash occurs, a cause is determined, and action is taken to mitigate those causes. SMS will focus on the use of data to anticipate future risks and detect problems before crashes occur. In other words, move to a more proactive risk management approach. SMS will support FTA and transit providers of varying sizes and operating environments in the development of a data-based framework for identifying and analyzing safety hazards and risks, and prioritizing resources toward the mitigation of those safety hazards and risks.

From Compliance Approach		To SMS Approach
Documentation of current procedures and practices		Documentation of strategies to address priority safety risks
Safety regulators as primary users of safety data		Safety regulators, agency leadership, employees, and stakeholders as primary users of safety data
Focus on compliance with prescriptive regulations		Focus on measurement of effectiveness of risk control strategies and achieving safety outcomes
Reactive post-facto response to lagging indicators such as accidents		Proactive focus on accident precursors such as close calls to prevent events

Improving safety performance within the public transportation industry is a collaborative effort that requires participation from a number of partners at every level of the transit industry, including the Federal government, States, regional entities, local governmental authorities, tribal governments, and transit providers of all sizes in both cities and rural areas. Guided by FTA's safety mission and vision, the National Safety Plan will guide the collective effort to manage safety risks within our Nation's public transportation systems.

FTA and the industry's success will be based on delivering positive, measurable results, and ensuring the best use of available resources to identify safety hazards, analyze safety risks, and mitigate the potential of accidents occurring. This requires collection

and sharing of safety data to build situational awareness and enable effective risk-informed decision making. In addition, safety risk management depends on noticing risk precursors such as training compliance or preventive maintenance compliance – not just objective information about risk probability and severity, but what these precursors tell us about safety and reliability, and the public interest that drives many decisions.

FTA has a responsibility to help the industry transition into the new regulatory environment under the Public Transportation Safety Program. The National Safety Plan will be FTA's primary tool for disseminating guidance, technical assistance, templates and other information to educate, inform and assist transit providers to improve their safety performance. This Plan is not a regulation. Although transit providers are required by law to set safety performance targets based on the measures in this Plan, FTA is not currently proposing to impose mandatory requirements on the transit industry through this Plan, but may do so in the future. Accordingly, FTA will publish future iterations of the Plan in the *Federal Register* for public notice and comment.

Chapter II – SMS FRAMEWORK

Explanation of the SMS Framework

SMS is a key aspect of the FTA's new National Public Transportation Safety Program. FTA believes that effective SMS implementation will improve public transportation safety and provide transit agencies with a structure for understanding and addressing safety risks through proactive and timely data-driven organizational decision-making.

FTA developed this SMS Framework to guide public transportation and oversight agencies by:

- Providing a brief overview of key SMS concepts;
- Describing attributes of an effective SMS; and
- Presenting FTA's adopted SMS components and sub-components.

FTA's SMS Framework provides the building blocks of SMS and some of the major milestones for its implementation. By sharing this Framework, FTA aims to standardize the understanding of SMS and actively support its implementation through communication and partnership with the public transportation industry.

Why SMS?

The safety of passengers and employees is a top priority for all public transportation industry stakeholders. When compared to other modes of surface transportation, public transit has demonstrated a strong safety record. However, accidents still occur, and injury rates are trending upwards. In recent years, the understanding of how accidents happen in the public transportation industry has expanded. Looking beyond the assignment of blame to an individual employee or supervisor, SMS allows public transportation agencies to examine how organizational factors contribute to incidents, accidents, and near misses. Organizational factors include how an agency:

- Allocates its resources;
- Defines and establishes operational procedures;
- Supervises frontline personnel;
- Selects and trains staff;

- Monitors service delivery operations; and
- Resolves human performance issues.

Recent investigations of accidents and incidents have revealed the importance of these organizational factors *after the fact*. SMS proactively identifies and analyzes contributing organizational factors *before the fact*—before accidents or incidents bring them to light.

Successful management of these organizational factors requires that transit agencies make wise decisions about how they identify, prioritize, and address safety concerns. To date, most public transportation agencies have experience in applying system safety principles to address safety concerns. SMS builds on this experience by integrating basic system safety principles – updated to reflect advances in safety thinking – into specific organizational and management processes through:

- Increasing the focus on hazard identification across the organization;
- Broadening the scope of safety data collection;
- Emphasizing the importance of managing safety risks across all areas of operations;
- Integrating data from other organizational processes into safety data analysis;
- Promoting participation and contribution of frontline personnel in the management of safety; and
- Fostering an organizational culture that encourages proactive safety reporting and safety risk management.

SMS is a management system, akin to a financial or quality management system. It ensures that a public transportation agency, regardless of its size or service environment, has the necessary organizational structures, activities and tools in place, and the necessary safety accountabilities to direct and control resources to manage safety proactively and optimally.

SMS activities proactively detect safety concerns and organizational factors, and correct them using data-driven prioritization. As such, important to its success are the:

1. Effective collection, analysis, and sharing of safety data, and
2. Active, accurate, and routine safety performance measurement.

SMS provides transit and oversight agencies with additional tools and activities, and therefore new opportunities to efficiently and effectively align safety priorities and promote continuous improvement in safety performance.

Attributes of SMS

SMS is a formal, top-down, data-driven, organization-wide approach to managing safety risks and assuring the effectiveness of safety risk mitigations. SMS helps a transit agency focus its safety management efforts by ensuring that:

1. Senior management has access to the information necessary to strategically allocate resources based on the unique safety priorities of the specific transit agency;
2. Lines of safety decision-making accountability are established throughout the organization to support the resolution of safety concerns and thus promote a proactive safety culture; and
3. Transit agencies address organizational factors that may lead to safety breakdowns, identify system-wide trends in safety, and manage hazards before they result in accidents or incidents.

SMS can be adapted to the mode, size, and complexity of any transit agency in any environment: urban, suburban, or rural. The extent to which SMS processes, activities, and tools are implemented (and documented) will vary from agency to agency. For a small transit operation, SMS processes will likely be straightforward, and activities and tools less burdensome. For a larger transit agency with hundreds or thousands of employees and multiple modes, SMS processes will likely be complex, and activities and tools more resource-intensive.

SMS is adaptable

- SMS adapts to transit agencies of all sizes, service environments, modes, and operating characteristics.
- SMS provides the necessary processes, activities, and tools to manage safety effectively.

The FTA SMS Framework helps to standardize the building blocks of an effective SMS; however, each transit agency will determine the level of detail necessary to identify and

establish its accountabilities, as well as the complexity and detail of its own processes, activities, and tools to address its unique safety risks.

EXECUTIVE MANAGEMENT COMMITMENT

It is a basic management tenet that accountabilities flow top-down. Therefore, as a management system, SMS requires that safety accountability reside with the top executive of a transit agency. While this is usually at the CEO or General Manager level, an agency's Board of Directors also plays an integral role for establishing a sound foundation for safety management.

Regardless of agency size, executive management must play a significant role in developing and sustaining an SMS and a positive safety culture. Without the ongoing commitment of agency executives, any attempt for successful integration of SMS practices into the agency's activities will likely fall short. As such, before going into detail on each of the four components of the FTA SMS Framework, it is important to discuss the role of executive management in SMS implementation and continued operation.

SMS requires management commitment

- The Accountable Executive is ultimately responsible for safety management.
- Executive management includes the management of safety through SMS among its top priorities.
- Support for safety and the SMS is visible throughout all levels of management.

Executive management is ultimately accountable for safety because they are tasked with allocating resources to address business functions, including the management of safety as organizational processes.

SMS requires the establishment of explicit lines of decision-making accountability at the senior management levels. Within SMS, the individual with ultimate accountability for its day-to-day operation is known as the *Accountable Executive*. Typically, the Accountable Executive is the head of a transit agency: its CEO, President, General Manager, or Executive Director. Regardless of title, the Accountable Executive plays a central role in the development, implementation, and operation of SMS, in addition to setting safety objectives and safety performance targets.

The Accountable Executive does not need to hold special qualifications or be a safety expert. However, the Accountable Executive must:

- Understand how SMS works, what it seeks to achieve, the potential benefits it will generate for the agency, and his or her role in the management system operation;
- Know the key personnel to consult for the safety information that will inform decisions related to the allocation of resources; and
- Have an understanding of significant safety issues that a transit agency might face during delivery of services.

For an Accountable Executive, safety information–like financial, schedule, planning, and service information – is an integral source of the overall information necessary to allocate resources, set budgets, and manage safety risks. The Accountable Executive should use safety reports and analyses, which are products of SMS processes, as factors in budget planning.

The Board of Directors, or equivalent authority, plays a similar critical role in budget planning and will need to stay informed of top agency safety management priorities and, in consultation with the Accountable Executive, ensure that safety risks are minimized through the strategic application of available resources.

SMS COMPONENTS AND SUBCOMPONENTS

The FTA SMS Framework is comprised of four components and eleven sub-components.

SAFETY MANAGEMENT SYSTEM COMPONENTS

Safety Management Policy	Safety Assurance
1. Safety Management Policy Statement 2. Safety Accountabilities and Responsibilities 3. Integration with Public Safety and Emergency Management 4. SMS Documentation and Records	8. Safety Performance Monitoring and Measurement 9. Management of Change 10. Continuous Improvement
Safety Risk Management	**Safety Promotion**
5. Safety Hazard Identification 6. Safety Risk Assessment 7. Safety Risk Mitigation	11. Safety Communication 12. Competencies and Training

Each component and its sub-components are applicable to an agency of any size. SMS provides the flexibility for each transit agency to decide how to implement these processes and activities. SMS components interact with each other to provide an effective system of feedback. The following sections describe the components of SMS and serves as guidance to the transit agencies in their implementation of SMS.

I. – Safety Management Policy

The Safety Management Policy is the written foundation of a public transportation agency's safety management system. It formally and explicitly commits an agency to the development and implementation of the organizational structures and resources necessary to sustain the safety management processes and activities of an SMS. An effective Safety Management Policy establishes that a transit agency's top executive is ultimately accountable for safety management.

The Safety Management Policy component encompasses an agency's safety objectives and safety performance targets, and the necessary organizational structures to accomplish them. It establishes senior leadership and employee accountabilities and responsibilities for safety management throughout an agency. It also

SMS is formal and structured

SMS defines management commitment to meet established safety objectives and safety performance targets

commits senior leadership to the oversight of an agency's safety performance through meetings and regular reviews of activity outputs and discussions of resource allocation with key agency stakeholders.

The Safety Management Policy is implemented in practice though the Safety Management Policy Statement, which the Accountable Executive formally endorses.

SAFETY MANAGEMENT POLICY SUB-COMPONENTS

1. *Safety Management Policy Statement* – This sub-component clearly frames the fundamentals upon which a transit agency will build and operate its SMS. It documents executive management's commitment to the SMS, and places the management of safety at the same level as a transit agency's topmost business processes. Appendix B provides an example of a Safety Management Policy Statement.

   To be effective, a transit agency's Safety Management Policy Statement addresses the following six crucial aspects:

   - Must be signed by the highest executive in the agency (typically, the Accountable Executive (CEO/GM) or Board of Directors/oversight entity) to convey that SMS is important to the highest level of the organization;
   - Includes a clear statement about providing resources for managing safety during service delivery because no activities, safety-oriented or otherwise, can operate without resources;
   - Commits the agency to an employee safety reporting program to convey that receiving safety information from employees is critical to the operation and success of the SMS;
   - Defines conditions under which exemptions from disciplinary actions would be applicable, thus encouraging the reporting of safety concerns by employees;
   - Spells out unacceptable operational behaviors; and
   - Is communicated, with visible and explicit support from executive management, throughout the transit agency.

Finally, the Safety Management Policy Statement documents management's commitment to continuous safety improvement, as well as to the continuous improvement of the safety management system itself.

2. *Safety Accountabilities and Responsibilities* – This sub-component defines the accountabilities and responsibilities for the performance of the SMS. It describes the relationships between the Accountable Executive and a transit agency's governance structure.

   Under the Safety Accountabilities and Responsibilities sub-component, an Accountable Executive is identified and accountabilities, responsibilities, and authorities are defined for other executive and senior managers. These accountabilities, responsibilities (and their delegation), and authorities ensure the effective and efficient operation of the SMS, and may vary from agency to agency based on the size and complexity of the agency.

   It is critical to appoint a subject matter expert for the implementation and day-to-day operation of the SMS, as well as staff necessary to support the subject matter expert in the day-to-day operation of the SMS. The following sample responsibilities would most likely fall to this SMS manager:

   - Directs collection and analysis of safety information;
   - Manages hazard identification and safety risk evaluation activities;
   - Monitors safety risk mitigations;
   - Provides periodic reports on safety performance;
   - Advises senior management on safety matters;
   - Maintains safety management documentation; and
   - Plans and organizes safety training.

   While SMS responsibilities will not look the same at all transit agencies, the following are some anticipated, and minimum, sample responsibilities that fall on all line and technical management personnel who have responsibilities under SMS:

   - Actively support and promote the SMS;

- Ensure that they and their staff comply with the SMS processes and procedures;
- Assist in ensuring that resources are available to achieve the outcomes of the SMS; and
- Continually monitor their area of SMS responsibility.

Each transit agency will determine the structure for accountabilities and responsibilities that will best support its SMS. However, the following principles apply to all:

- Ensure accountability for SMS performance is at the highest level of the organization;
- Implement SMS in a manner that meets transit agency safety performance objectives;
- Establish the meeting or committee structure necessary for the size of the agency to ensure that safety information moves up, down and across the agency;
- Effectively communicate SMS roles and responsibilities to all relevant individuals; and
- Ensure SMS policies and procedures have been communicated to all agency employees.

3. *Integration with Public Safety and Emergency Management* – This sub-component ensures integration of programs that have input into, or output from, the SMS. Each transit agency will identify and describe the necessary coordination with both external organizations and internal departments for dealing with emergencies and abnormal operations, as well as the return to normal operations. This sub-component addresses the various internal and external programs that may affect safety management and includes an index of the plans and procedures that support the transit agency's public safety and emergency management activities. Pursuant to the Public Transportation Agency Safety Plan Rule, rail transit agencies are required to have emergency preparedness and response plans.

4. *SMS Documentation and Records* – This sub-component includes the activities for the documentation of SMS implementation, the tools required for day-to-day SMS operation, and the management of new or revised safety requirements, regulatory or otherwise.

   The extent and complexity of the SMS documentation will be commensurate to an agency's size and structure. SMS documentation and records must be readily available to those with accountabilities for SMS performance or responsibilities for SMS implementation and operation.

II – Safety Risk Management

The Safety Risk Management component is comprised of the processes, activities, and tools a transit agency needs to identify and analyze hazards and assess safety risks in operations and supporting activities. It allows a transit agency to carefully examine what could cause harm, and determine whether the agency has taken sufficient precautions to minimize the harm, or if further mitigations are necessary.

SMS is proactive

- Safety Risk Management promotes the identification of hazards before they escalate into accidents or incidents.
- Safety Risk Management assesses safety risk and establishes necessary mitigations.

All transit agencies have implemented activities to identify safety concerns. Under an SMS, this practice will expand to ensure use of both proactive (i.e. employee safety reporting) and reactive (i.e. investigations) sources that are as comprehensive as necessary for the size and complexity of the agency.

Through ongoing Safety Risk Management activities, safety hazards and concerns in transit operations are identified and assessed, and mitigations are put in place to manage their safety risk.

SAFETY RISK MANAGEMENT SUB-COMPONENTS

5. *Safety Hazard Identification* – As the first step in the Safety Risk Management process, safety hazard identification involves establishing methods or processes to identify hazards and consequences of the hazards to address them before they escalate into incidents or accidents. It also provides a foundation for the safety risk assessment and mitigation that follows.

Hazards are an inevitable part of transit operations. Only after a transit agency identifies hazards can it address them. Many transit agencies have some of the following hazard identification sources in place:

- Employee safety reporting program
- Observations of operations
- Inspections
- Internal safety investigations
- Accident reports
- Compliance programs
- Committee reviews
- Industry data
- Governmental sources (FTA, NTSB, oversight agency)
- Customer and public feedback or complaints

There are many sources for safety information and many ways to identify hazards, and the sources and methods used depend on the size and complexity of the organization. The data sources may vary, but there are key attributes of effective hazard identification:

- The more comprehensive the data sources and documentation, the more confident management can be that safety concerns are being identified;
- Training employees on proper identification and reporting of safety concerns increases the likelihood that hazards can be addressed;
- Focus on the collection of safety concerns while safety representatives work with operations and management personnel to identify the exact hazard(s); and

- Promote and support agency-wide safety concern reporting and hazard identification.

Each transit agency will establish its preferred methods for identifying safety hazards. As appropriate, subject matter experts from relevant departments should be involved in a transit agency's hazard identification.

6. *Safety Risk Assessment* – Following safety hazard identification, a transit agency establishes methods or processes to assess the safety risks associated with identified hazards.

   The term "safety risk" represents the likelihood that people could be harmed, or equipment could be damaged, by the potential consequences of a hazard and the extent of the harm or damage. Therefore, safety risk is expressed and measured by the predicted probability and severity of a hazard's potential consequences.

   Safety risk assessment must consider existing mitigations when determining whether further measures are needed to reduce the likelihood and severity of the potential consequences of a hazard.

7. *Safety Risk Mitigation* – Following the safety risk assessment, a transit agency identifies any mitigations or strategies that may be necessary to protect the public and personnel from unsafe conditions.

   Safety risk mitigations are actions taken to reduce the likelihood and/or severity of the potential consequences of a hazard. Safety risk mitigation enables a transit agency to actively "manage" safety risk in a manner that is aligned with its safety performance targets, and consists of initial, ongoing, and revised mitigations.

III – Safety Assurance

Safety Assurance builds confidence and assures mitigation effectiveness

- Safety Assurance ensures that transit agencies implement appropriate and effective mitigations.
- Safety Assurance is a never-ending process that monitors the safety performance of an organization.

The Safety Assurance component ensures that mitigations are implemented, adhered to, appropriate, effective, and sufficient in addressing the potential consequences of identified hazards. Mitigations developed under the Safety Risk Management process are "handed-off" to Safety Assurance analysts reviewing the data to determine if (1) the mitigations are effective, and (2) that no new risks have been introduced through implementation of the mitigations. Safety Assurance also ensures that the SMS is effective in meeting an agency's safety objectives and safety performance targets. A transit agency assures its safety objectives are met through the collection and analysis of safety data, including the tracking of safety risk mitigations.

A transit agency implements its Safety Assurance process through the active monitoring of operations, safety reporting systems, routine workplace observations, inspections, audits, and other activities, designed to support safety oversight and performance monitoring. An effective employee safety reporting program is essential to the Safety Assurance function.

Safety Assurance also helps a transit agency evaluate whether an anticipated change may affect the safety of operations. If an anticipated change is determined to introduce safety risk, a transit agency would conduct Safety Risk Management activities to minimize the safety risk associated with the change.

SAFETY ASSURANCE SUB-COMPONENTS

8. *Safety Performance Monitoring and Measurement* – SMS generates data and information that senior management needs in order to evaluate whether implemented safety risk mitigations are appropriate and effective and how well an agency's safety performance is in line with established safety objectives and safety performance targets. Safety performance monitoring does not focus on monitoring individuals, but rather monitoring the safety performance of a

transit agency itself through routine monitoring of operations and maintenance activities. Safety performance monitoring informs the annual reviews of overall safety performance, and the SMS itself, as described below in the Continuous Improvement sub-component.

Examples of safety performance monitoring activities include the following:

- Monitor employee safety reporting program
- Monitor service delivery activities (must include field observations)
- Monitor operational and maintenance data
- Conduct safety surveys
- Conduct safety audits, studies, reviews, and inspections
- Conduct safety investigations
- Evaluate data and information from external agencies or peers

9. *Management of Change* – Change may introduce new hazards and safety risk into transit operations. Therefore, agencies should establish the criteria that define when a change must be evaluated through the Safety Risk Management process. If a proposed or identified change meets or triggers those criteria, the agency uses Safety Risk Management to review existing mitigations to determine if they are sufficient or if new mitigations are necessary. It is important that a transit agency leverage its field monitoring activities (under the Safety Performance Monitoring and Measurement sub-component) to support the identification of changes in a system that may not be planned.

10. *Continuous Improvement* – Evaluation of the SMS is necessary to ensure that it effectively and efficiently allows the agency to meet safety objectives and performance targets. Transit agencies should leverage the data and information gathered while conducting safety performance monitoring to address any identified weaknesses in SMS organizational structures, processes, and resources in a timely manner, and also complete annual reviews of overall safety performance.

IV – Safety Promotion

Safety Promotion provides visibility of executive management's commitment to safety, and fosters improved safety performance by increasing safety awareness through communication and training. Through communication of lessons learned and broader safety information, employees are made aware of safety priorities and safety concerns at both the organizational level and as they relate to their own duties and responsibilities.

The appropriate training for all staff, regardless of their level in the agency, provides visibility for, and knowledge of, the SMS. It ensures employees receive the training they need to do their job safely, and gives them shared ownership of the transit agency's safety mission. This training commitment demonstrates management's commitment to establishing an effective SMS.

SAFETY PROMOTION SUB-COMPONENTS

11. *Safety Communication* – A two-way feedback loop between frontline employees and management about safety information is crucial in establishing a positive safety culture. Effective safety communication makes personnel aware of safety priorities and initiatives and ensures that feedback is captured and acted upon as appropriate. Safety-related information must be actively and routinely communicated, and must focus on raising awareness of hazards and potential safety risks. Regular discussion of safety concerns promotes an environment that encourages employees to report concerns and demonstrates management commitment to both the employees and the agency's safety performance objectives.

12. *Competencies and Training* – Training of all employees with respect to their role and responsibilities as they relate to agency safety performance is perhaps the most critical driver for successful SMS implementation. It also shapes employee perception of executive management's commitment to safety. Achieving appropriate levels of competency for each staff level enables the consistent application of their skills to help the transit agency achieve its safety performance objectives.

At the frontline employee level, safety management training should provide for the development of *safety reporting competencies*, i.e. employees should receive formal training on the expected contents of employee safety reporting (what to report; what not to report) and the procedures established for reporting.

SMS promotes a strong culture of safety

- Safety Promotion encourages and teaches safety through effective communication and training.
- Safety Promotion ensures employees at all levels get the training they need to do their job safely.

At the safety management level, formal training should develop safety data management competencies, i.e. how to analyze safety *data*, extract *information* from the safety data, and turn safety information into safety *intelligence* for senior management decision-making for the allocation of safety management resources.

Chapter III – SAFETY PERFORMANCE MANAGEMENT

What is Performance Management?

MAP-21 transformed the Federal transit program by establishing new requirements for performance management for safety and transit asset management. Through the establishment of goals, measures, targets and plans, performance management refocuses attention on accountability and transparency and improves project decision-making through performance-based planning and programming. The performance management requirements are intended to facilitate more effective investment of Federal transportation funds by refocusing attention on national, regional, and local transportation goals, increasing the accountability and transparency of the Federal transit and Federal-aid highway programs, and improving project decision-making through performance-based planning and programming.

FTA has undertaken a number of separate but related rulemakings to implement the performance management framework and establish national performance measures. FTA must establish performance measures for transit asset management and safety, respectively. On July 26, 2016, FTA published a final rule for Transit Asset Management (TAM) NPRM which includes performance measures to improve the condition of public transportation capital assets.[6] Through this National Safety Plan, FTA is establishing safety performance measures for all modes of public transportation. Transit operators that are subject to the requirements for Public Transportation Agency Safety Plans would set targets in their Safety Plans based on the measures established in this Plan.

Safety performance management is a critical tool that will support transit providers and FTA in identifying safety concerns and monitoring progress in safety improvements. FTA's safety mission, vision and focus areas provide strategic direction for improving safety performance within the transit industry. Based on the vision, mission, and focus areas, FTA will establish performance measures to monitor industry progress towards improving safety performance and help build a common understanding of the state of safety performance.

[6] 80 FR 58912.

VISION	MISSION
To be recognized as the industry leader in safety promotion, information sharing, and fair oversight.	*To make transit safer through policy development, hazard investigation, data collection, risk analysis, effective oversight programs, and information sharing.*

Safety Focus Areas

FOCUS AREA: IMPROVE PUBLIC TRANSPORTATION SAFETY PERFORMANCE

Public transportation is an integral part of local and regional communities, providing access to work, entertainment, and critical resources. The increase in demand for public transportation, combined with lack of funding for maintenance and replacement of assets, has placed an increased burden on transit providers who must balance safety, operational, state of good repair, and expansion demands. Managing safety performance will help public transportation agencies make critical decisions about investments in safety, reconstruction, or rehabilitation of existing assets in order to achieve and maintain a state of good repair.

FOCUS AREA: IMPROVE SAFETY FOR TRANSIT ACCESS AND TRANSIT FACILITIES

Transit customers often access transit systems by walking or biking. The safety of pedestrians and bicyclists is an important consideration as public transportation providers plan projects and operate service in their communities. Transit-accessible communities promote a general sense of wellness and vitality, extending the walkability of neighborhoods and improving quality of life. It is these attributes that, in part, have created an increased demand for public transportation across the country. FTA encourages public transportation agencies to incorporate into their local safety plans performance measures that foster safe access to and safe operation of their systems. Through coordination at the local and regional level, public transportation agencies can ensure that their transit systems are both safe and accessible.

The Importance of Safety Performance Measures

Safety performance measurement will help transit agencies monitor their safety performance. The measurement and evaluation of safety performance requires a carefully structured program of planning, setting targets, identifying valid measures, conducting proper data analysis, and implementing appropriate follow-up activities. Safety performance measurement is a key aspect of a safety management process, and provides the basis for continuous safety improvement.

In order to capture the broad and varied nature of public transportation, in this first National Safety Plan, FTA is relying on measures that can be applied to all modes of public transportation and are based on data that is generally currently collected in the National Transit Database (NTD).[7] FTA's safety performance measures focus on improving transit safety performance through the reduction of safety events, fatalities and injuries. In the future, FTA intends to identify and incorporate proactive measures in future Plans. For example, FTA provides SMS training across the industry and collects information on participation in the training. In the future, FTA will be able to provide a safety performance measure related to SMS training participation from which individual transit agencies will be able to establish their own safety performance indicators and targets. Likewise, FTA will be able to establish a safety performance target for the entire industry or modes.

Pursuant to 49 U.S.C. § 5329(d), a Public Transportation Agency Safety Plan must include safety performance targets based on the safety performance measures in this Plan. The safety performance measures (fatalities, injuries, safety events and system reliability) selected by FTA are intended to provide "state of the industry" high-level measures and help focus individual agencies on the development of specific performance indicators and measurable targets relevant to their operations. These measures should also inform agencies as they identify actions they each would take to improve their own safety outcomes. Agencies should select performance targets that are appropriate to their operations and environment. Successful performance targets are specific, measurable, attainable, relevant, and time-bound (SMART). As part of the

[7] FTA recognizes that each transit agency has its own operating policies that impact how performance is reported to the NTD. However, bringing greater attention to safety and reliability metrics will encourage more robust, consistent data reporting in the future.

annual review of a Public Transportation Agency Safety Plan, each transit agency should reevaluate its safety performance measures and determine how the measures should be refined, sub-measures developed, and performance targets selected.

What are the Safety Performance Measures?

SAFETY PERFORMANCE MEASURE: **FATALITIES** (total number of reportable fatalities and rate per total vehicle revenue miles by mode)

Reducing the number of fatalities is a top priority for the entire Department of Transportation. As an industry, we must try to understand the factors involved in each fatality in order to prevent further occurrences. Measuring the number of fatalities over vehicle revenue miles, by mode, provides a fatality rate from which to assess future performance.

SAFETY PERFORMANCE MEASURE: **INJURIES** (total number of reportable[8] injuries and rate per total vehicle revenue miles by mode)

Many transit agencies have never had a fatality, and continued safe operation is exactly what is desired. However, injuries occur much more frequently, and are due to a wide variety of circumstances. Analyzing the factors that relate to injuries is a significant step in developing actions to prevent them. Again, measuring the number of injuries by mode, over vehicle revenue miles provides an injury rate from which to assess future performance.

SAFETY PERFORMANCE MEASURE: **SAFETY EVENTS** (total number of reportable events and rate per total vehicle revenue miles by mode)

The safety events measure captures all reported safety events that occur during transit operations and the performance of regular supervisory or maintenance activities. A reduction in safety events will support efforts to reduce fatalities and injuries, as well as damages to transit assets. Measuring the number of safety events by mode over vehicle

[8] The thresholds for "reportable" fatalities, injuries, and events are defined in the NTD Safety and Security Reporting Manual.

revenue miles provides a safety event rate from which future performance can be compared.

SAFETY PERFORMANCE MEASURE: **SYSTEM RELIABILITY** (mean distance between major mechanical failures by mode)

The system reliability measure expresses the relationship between safety and asset condition. The rate of vehicle failures in service, defined as mean distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures.[9] This is a measure of how well a fleet of transit vehicles is maintained and operated. FTA recognizes the diversity of the transit industry, and that agencies have varied equipment types, with varied rates of performance, so this measure allows agencies to develop safety performance targets that are specific to their own fleet type, age, operating characteristics, and mode of operation.

How are Safety Performance Measures Used to Improve Safety Performance?

The public transportation industry already has parameters for measuring some aspects of safety performance which are reported to the NTD (see Table 3-1). However, these measures need clear definitions to ensure consistency in data reporting, and better baselines against which to make future comparisons. To address these inconsistencies, FTA will develop performance measures for future editions of the National Safety Plan that address industry-wide concerns as well as those that are mode-specific. Transit agencies would have the opportunity to select those that address their particular objectives for safety improvement.

Table 3-1 Data and Information from Safety and Risk Monitoring in the Transit Industry[10]

[9] Major Mechanical System Failures: Major mechanical system failures prevent a vehicle from completing or starting a scheduled revenue trip because actual movement is limited or because of safety concerns. Examples of major bus failures include breakdowns of brakes, doors, engine cooling systems, steering, axles, and suspension.

[10] Table 3-1 illustrates the types of information that is currently collected by the transit industry to measure its safety performance.

Existing safety performance measures (under NTD)

- **Casualties**
  - Fatalities (customers, employees, and the public)
  - Injuries (customers, employees, and the public)
- **Property damage**
- **Reportable events (Accidents)**
  - Train derailments (mainline, yard, side tracks)
  - Collisions (vehicle-to-vehicle, vehicle-to-person, vehicle-to-object)
  - Collisions at grade-crossings
  - Fires
  - Evacuations for life safety reasons

Results from reportable event (accident) investigations

- Probable cause
- Contributing factors
- Corrective actions

Audit results

- Findings
- Corrective actions

Safety risk management and monitoring information

- Safety reporting from all levels of the organization
- Violations of operations and maintenance rules
- Job-based certification and awareness training
- All-hazards preparedness analyses
- Operations and maintenance performance, including state of good repair (SGR) and TAM
- Monitoring of hazard logs
- Crime trends, such as trespassing, perimeter breaches, and fare evasion
- Fitness for duty, including drug/alcohol program results and hours of service
- Liability losses
- Customer complaint information
- Changes to management, operations, or maintenance
- Studies of hazardous materials, spills, and environmental concerns
- Ad hoc studies of hazards and vulnerabilities

For every performance measure selected, FTA and transit agencies can develop baselines and targets against which to measure and compare performance. Meaningful performance targets are timely, accurate, accessible, and complete. When possible, it is best to analyze data over time to determine if trends are present.

Establishing baselines for performance measures provides grounded metrics as the basis for further and future comparison. Safety performance baselines may be established for individual transit agencies, for transit agency modes, and/or for the public transportation industry as a whole.[11] After a baseline is established, a transit agency can develop safety performance indictors and select safety performance targets to allow tracking of safety performance improvement progress. Performance should be measured at least annually by comparing actual performance metrics with targets and original baselines. If safety performance improves, an agency may choose to revise its safety performance targets to be more stringent or select different safety performance indicators and targets for improvement.

Transit safety performance can be measured using a number of measures, including lagging indicators such as accidents, fatalities, injuries, and property damage associated with transit agencies' provision of service, and leading indicators. Leading indicators provide a transit agency with the ability to monitor information or conditions that may affect safety performance. Lagging indicators provide information on events that have already taken place.

In the future, FTA intends to transition to include proactive measures and encourages transit agencies to do the same. Table 3-2 describes lagging and leading indicators in greater detail. In addition to the performance measures set forth in this Plan, FTA strongly encourages agencies to incorporate both lagging and leading indicators directly related to safety issues identified in their agencies as high risk into their performance management portfolio. Agencies should consider including positive measures that assess what people are doing rather than what they are failing to do.

[11] FTA and States can establish baselines for the performance measures within their SMS programs, as well.

Table 3-2. Lagging and Leading Indicators[12]

Lagging indicators characteristically:

- Identify trends in past safety performance
- Assess outcomes and occurrences
- Have a long history of use
- Are an accepted standard
- Are easy to calculate

Leading indicators are safety culture metrics that are associated with, and precede, an accident. They can:

- Reveal areas of weakness in advance of accidents
- Be associated with proactive actions to identify hazards
- Aid risk assessment and management

This is also the starting point from which FTA expects to advance through the development and implementation of a new strategic data management plan which will support the standardization of data and information collection and analysis. Standardized analyses and reporting will enable FTA to apply meta-analyses to transit safety performance results for better national-level monitoring of transit safety performance. Along with continued collaboration with States and the public transportation industry, this national-level monitoring will facilitate FTA's identification of opportunities to assist agencies in improving transit safety through technical assistance, research, and development of resource materials that address emerging safety issues.

FTA expects that each agency, regardless of size, will evaluate its own operating environment and safety concerns to determine its safety risks, link specific safety objectives to agency actions, develop measures for identified actions, and set performance targets based on the measures. After FTA issues a final rule for the Public Transportation Agency Safety Plan, each transit agency will be required to reevaluate its safety performance measures annually when reviewing and updating its agency

[12] Adapted from *Guidance Notes on Safety Culture and Leading Indicators of Safety*. American Bureau of Shipping (ABS), page 3. Available at http://www.eagle.org/eagleExternalPortalWEB/ShowProperty/BEA%20Repository/Rules&Guides/Current/188_Safety/Guide

safety plan, and determine how these measures should be refined, sub-measures developed, and performance targets selected.

Safety Data Trends

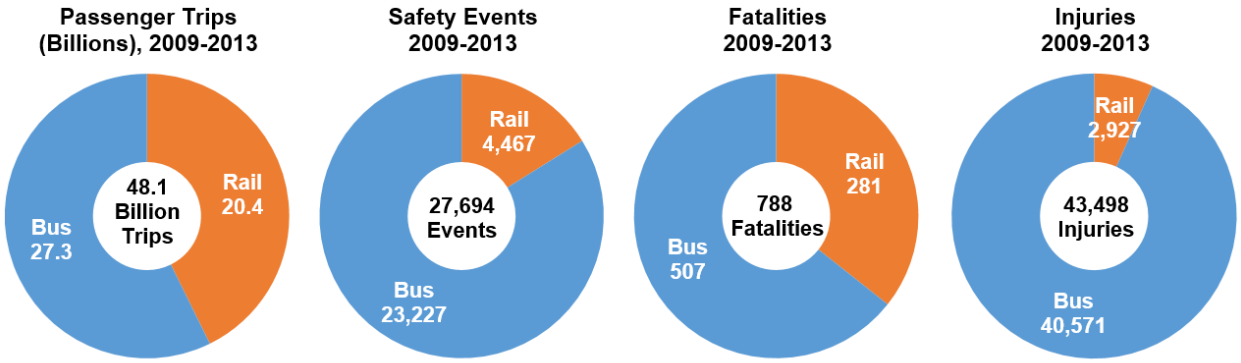
FTA currently maintains two sources for safety data reporting: the NTD, to which transit agencies report data as a condition for funding for public transportation agencies, and the State Safety Oversight (SSO) program, for rail transit modes that do not fall under the Federal Railroad Administration's jurisdiction. FTA utilizes these data sets to provide indicators of safety performance in outcome measures such as safety events, fatalities and injuries, as well as to provide trends in areas for which FTA believes additional focus may be warranted.

Current reporting of safety-related data and information in the transit industry is complex. Almost all transit agencies and modes report safety-related data to NTD.[13] Rail transit agencies also annually submit safety-related data and information to the NTD and FTA's SSO program through their State Safety Oversight Agency (SSOA). Small/rural transit agencies, mostly bus and paratransit modes, usually report NTD data as a grant sub-recipient through their SDOT. Bus operators in urban areas over 50,000 in population report directly to the NTD. Rural bus transit agencies report NTD data as a grant sub-recipient through their State Department of Transportation.

SAFETY EVENTS, FATALITIES AND INJURIES, 2009 – 2013

During the period 2009 – 2013, bus transit accounted for a majority of the industry's passenger trips, as well as the majority of safety events, fatalities and injuries. While rail transit accounted for 42% of all passenger trips, only 16% of safety events were attributable to rail transit. However, this 16% share of safety events resulted in 36% of all transit fatalities, but only seven percent of injuries reported. In other words, rail-related safety events have occurred less frequently, but the average rail-related safety event had more catastrophic outcomes than the average bus-related safety event during the time period.

[13] Exceptions exist for small, rural transit agencies.



Sources: SSO program (rail safety data), NTD (service and bus safety data)

The following table presents transit safety metrics per 100 million passenger trips for the last five years. As an industry, safety events, fatalities and injuries show an upward trend, and through safety performance monitoring, FTA hopes that agencies can investigate the reasons for this trend, and mitigate identified causal safety risks. However, by itself, rail transit shows downward trends in fatalities and injuries.

Transit Safety Events, Fatalities, and Injuries
Per 100 Million Unlinked Passenger Trips (UPT) 2009-2013

Modes	Rate	2009	2010	2011	2012	2013	**Total**	Trendline
Rail	Event Rate	**22.5**	**22.6**	**22.2**	**20.4**	**22.1**	**21.9**	
	Fatality Rate	**1.3**	**1.2**	**1.2**	**1.7**	**1.4**	**1.4**	
	Injury Rate	**14.7**	**16.5**	**14.2**	**13.9**	**12.8**	**14.4**	
Bus	Event Rate	**83.5**	**83.2**	**83.8**	**84.1**	**90.5**	**85.0**	
	Fatality Rate	**1.6**	**1.7**	**1.7**	**2.1**	**2.1**	**1.9**	
	Injury Rate	**137.6**	**148.9**	**148.1**	**150.2**	**157.7**	**148.6**	
All Transit	Event Rate	**58.2**	**57.3**	**57.5**	**56.8**	**60.6**	**58.1**	
	Fatality Rate	**1.5**	**1.5**	**1.5**	**1.9**	**1.8**	**1.7**	
	Injury Rate	**86.5**	**92.5**	**90.9**	**91.6**	**94.5**	**91.2**	

Sources: SSO program (rail safety data), NTD (service and bus safety data)

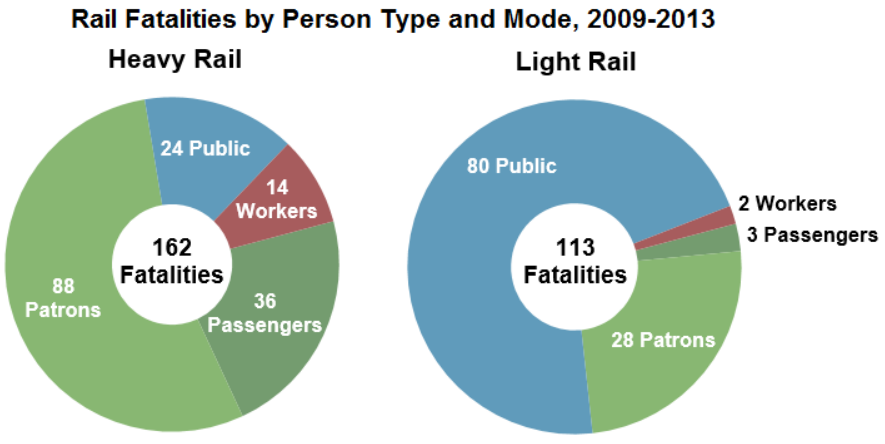
NOTE: Data includes safety events (reportable derailments, collisions, fires, and evacuations), fatalities (not including suicides or trespassers), and injuries (not including assaults or injuries due to crimes).

Over the five-year period from 2009-2013, transit agencies reported a total of 788 fatalities. 507 of these occurred in bus and other non-rail operating environments (64%), and 281 occurred in rail operating environments (36%).

When these data are normalized by looking at the number of fatalities divided by the number of passenger trips provided, the fatality rates over the last five years average 1.7 fatalities per 100 million passengers transported. This rate has been relatively steady, but has been trending slightly upward over the reporting period.

Heavy Rail and Light Rail Fatalities: 2009 - 2013

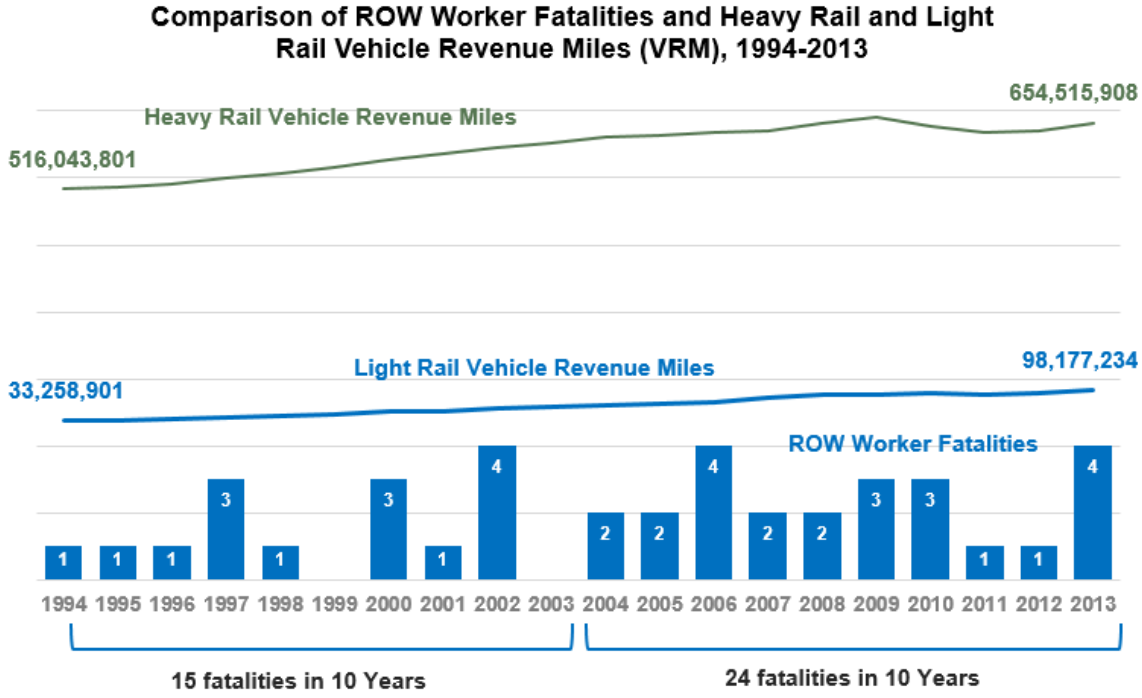
Fatality rates vary across rail modes due in large part to distinct operating environments and the inherent safety risk exposure associated with each. The charts below present heavy rail and light rail fatalities by person type, including passengers (customers onboard a transit vehicle), patrons (customers not onboard a vehicle), public (non-customers), and transit system employees, including right of way workers. It should be noted that heavy rail and light rail operations accounted for 275 of the 281 rail-related fatalities. An additional five fatalities occurred on automated guideway systems.



Source: SSO Program

Right of Way Worker Fatalities

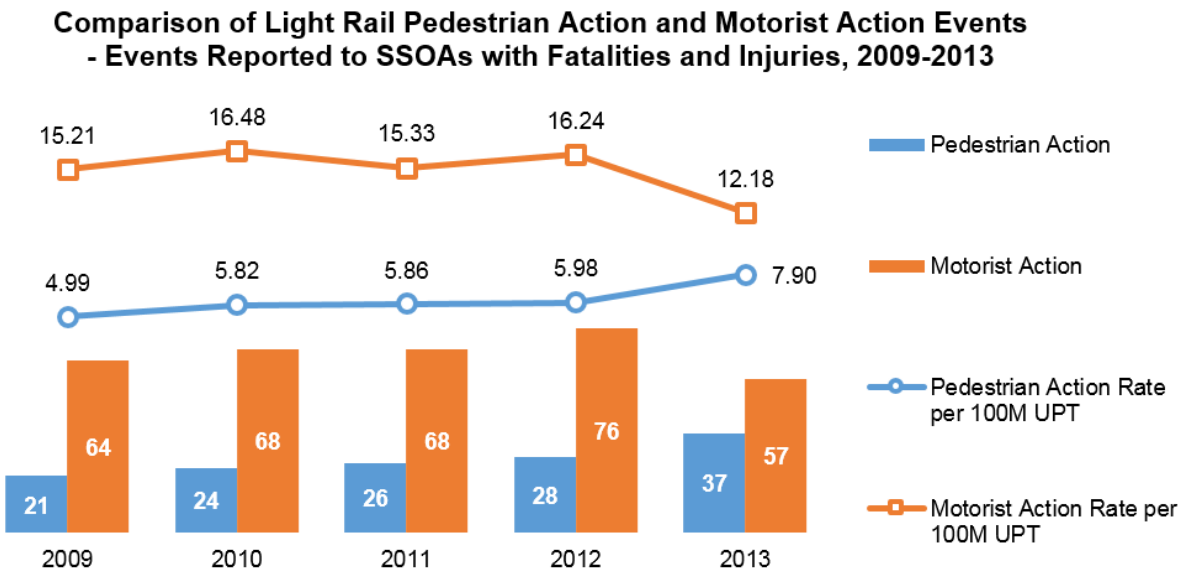
Fatality data reflect the exposure characteristics of particular types of operations (e.g., whether or not grade crossings exist, whether stations are enclosed, and how many customers are served). For example, heavy rail transit has experienced several right-of-way (ROW) worker fatalities in recent years. The chart below presents ROW fatalities for all rail modes over the last 20 years. Vehicle revenue miles have increased by about 39% over the past 20 years, increasing exposure for ROW workers.



Source: SSO Program

Rail Grade Crossing Events

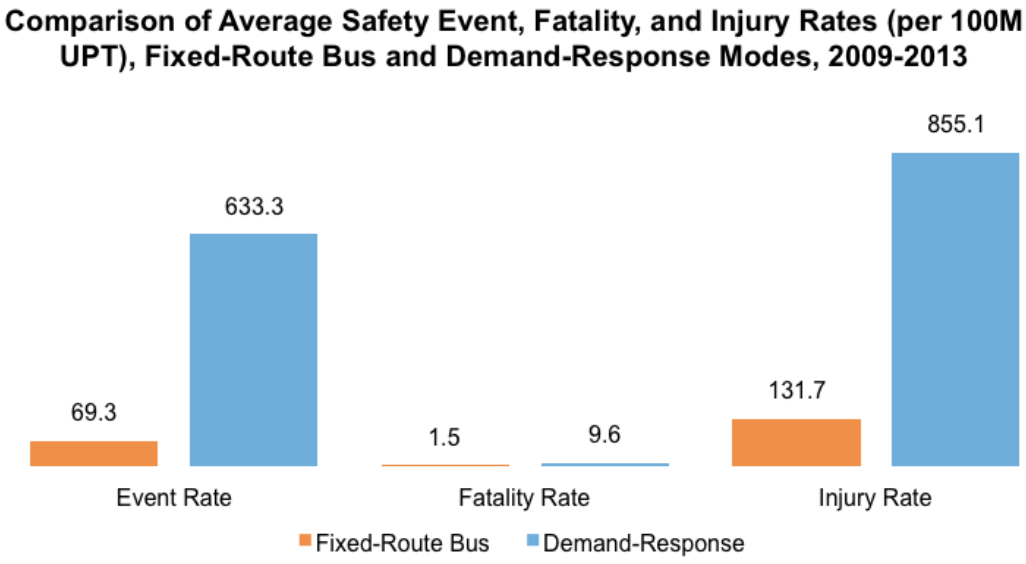
Light rail operating environments vary greatly from heavy rail systems. Light rail service utilizes rail grade crossings and even street-running alignments, increasing the exposure to vehicular and pedestrian traffic. Event data indicate a growing number of rail grade crossing events caused by pedestrians, as opposed to motor vehicles, underscoring the importance of ensuring safe transit access.



Sources: SSO program (rail safety data), NTD (service and bus safety data)

Bus and Paratransit Safety Events

Bus modes accounted for 27.3 billion trips between 2009 and 2013. This is 57% of the 48.1 total public transportation trips during the five-year period. Urban fixed-route bus modes represent 96% of these 27.3 billion trips. Demand response service and vanpools represent the remaining 4%. Data reveal that the safety performance of fixed-route bus modes is significantly better than demand response modes.



Source: NTD

Relationship between the National Safety Plan and Public Transportation Agency Safety Plans

In accordance with the statutory requirements of 49 U.S.C. § 5329(d)(1)(E), each transit agency must include in its public transportation agency safety plan, performance targets based on the safety performance measures established in this Plan. Each public transportation agency should establish sub-measures and related safety performance targets in their Public Transportation Agency Safety Plans that are appropriate to the agency's size and complexity.[14] Transit agencies will use these safety performance measures and targets to inform evaluation of the effectiveness of their SMS. These measures should evolve in subsequent years based on information learned through the Safety Risk Management and Safety Risk Assurance processes, and should help inform these activities.

The process of setting performance targets would require each transit provider to think quantitatively about its own safety needs and analyze what resources it could leverage to address those needs. How a transit provider sets its performance targets would be an entirely local process and decision; however, each provider should be able to explain what happened as a result of actions taken during the performance measurement period that affected its safety outcomes. For example, what mitigations were put in place that appear to have led to improved safety performance?

Relationship between Safety Performance and Transit Asset Management

The safety and performance of a public transportation system depend, in part, on the condition of its assets. When transit assets are not in a state of good repair, the consequences include increased safety risks, decreased system reliability, higher maintenance costs, and lower system performance.

In passing MAP-21, Congress recognized the critical relationship between safety and asset condition. We note, in particular, the congressional direction that the National

[14] Initially, some agencies may use output measures, such as the number of vehicles inspected, or the percentage of employees who have completed safety training. Outcome measures are useful for establishing benchmark performance and setting targets.

Safety Plan include the definition of *state of good repair* set in the rulemaking for asset management (49 U.S.C. § 5329(b)(2)(B)). The Transit Asset Management rule at 49 CFR part 625 define state of good repair as "the condition in which a capital asset is able to operate at a full level of performance." 49 CFR § 625.5.

Transit asset management is a strategic approach to improving and maintaining the condition of transit capital assets. The TAM rule aims to reduce the Nation's state of good repair backlog of deferred maintenance and replacement needs by requiring recipients to create TAM plans that will help them systematically address their maintenance needs, which will in turn improve service. Implementing a TAM plan will require transit agencies to collect and use asset condition data, set targets, and develop informed strategies to prioritize investments to meet their state of good repair goals.

TAM plans must include an asset inventory, condition assessments of inventoried assets, and a prioritized list of investments to improve the state of good repair of their capital assets. Recipients also must set SGR performance targets to monitor improvements in the condition of their assets. Implementing a TAM plan will require transit agencies to use data to make informed investment priorities to meet their state of good repair goals. Optimally, a transit agency's asset management planning process will work hand-in-hand with the agency's SMS for the mutual benefit of both, all under the leadership of the Accountable Executive. The following are three specific elements of the connection between safety and transit asset management:

1. **A condition assessment should direct and inform a transit agency's SMS**

The result of a condition assessment required under the TAM rule may oblige a transit agency to perform risk assessment and quality assurance--in accordance with the second and third pillars of SMS--for facilities, equipment, rolling stock, and infrastructure in poor condition. Although an asset that is in poor condition might not pose any specific safety risk to the transit system, that asset still might be prioritized for repair, rehabilitation, or replacement if the asset is negatively affecting system performance, reliability, or quality of service. Even for an asset that is in optimal condition, a transit agency may have reason to perform a risk assessment in light of its operating environment or other agency objectives (for example, resiliency for assets in flood zones).

2. **A transit agency's SMS will inform its TAM Plan and investment prioritization**

The results of safety risk management and safety assurance under a transit agency's SMS will provide valuable input to the agency's TAM Plan, and, in some instances, motivate the agency to revise its investment priorities accordingly. Ultimately, a transit agency makes its own decisions about trade-offs and investment priorities, based on the analytical processes, decision support tools and policies under its TAM Plan, and the agency's written policy for safety—the first pillar of an effective SMS—but the constant, deliberate feedback between the TAM Plan and the SMS will bring greater accountability and transparency to the agency's decision-making on the annual allocation of its financial resources.

3. **An agency's Accountable Executive should have a decision-making role in the agency's TAM Plan and investment prioritization**

The Accountable Executive who is ultimately responsible for risk management and safety assurance under a transit agency's SMS should be the same person who is responsible for approving the agency's capital plan and who makes decisions about investment prioritization. At minimum, however, the Accountable Executive should have a focal role in the transit agency's decision-making about the trade-offs amongst reinvestment in existing facilities, equipment, rolling stock, and infrastructure, versus investment in any new capital assets for purposes of improved performance of an expansion of service. Logically, the Accountable Executive for a transit agency's SMS would be either the General Manager or CEO. Across the industry, however, there are a variety of organizational structures for transit agencies, and in many agencies, the decisional authority for capital and operating expenditures lies with a Board of Directors. Whatever the structure of an organization, the Accountable Executive should engage with other agency executives in a candid, continuous dialogue about the connection between safety and transit asset management.

Positive changes in safety performance across public transportation will depend largely on a common understanding between transit asset management and safety, dedicated implementation of both a TAM Plan and Public Transportation Agency Safety Plan, and a targeted safety oversight and monitoring program. The performance measures and targets for both safety and transit asset management will enable transit agencies and

FTA to quantify our progress in enhancing safety and improving the condition of our facilities, equipment, rolling stock, and infrastructure through continuous performance management.

Relationship between Safety Performance Management and Planning

The safety performance targets set by transit providers, along with other performance targets set pursuant to other statutes, are an essential component of the planning process. The planning provisions at 49 U.S.C. 5303 and 5304 require States and MPOs to establish performance targets for transit that are based on the national measures for state of good repair and safety established by FTA and to coordinate the selection of those performance targets, to the maximum extent practicable, with performance targets set by transit providers to ensure consistency. 5303(h)(2)(B)(ii), 5304(d)(2)(B)(ii).

Furthermore, the Long Range Statewide Transportation Plan should and the Metropolitan Transportation Plan shall include: (1) a description of the performance measures and targets; and (2) a report evaluating the condition of the transit system(s) with respect to the State and MPO performance measures and targets, including the progress achieved in meeting performance targets compared with system performance recorded in previous years. 49 U.S.C. 5303(i)(2)(B) and (C), 5304(f)(7). Transportation improvement programs (TIPs) and statewide transportation improvement programs (STIPs) must include, to the maximum extent practicable, a discussion of the anticipated effects of the TIP/STIP toward achieving the performance targets in the Statewide and Metropolitan Transportation Plans by linking investment priorities to those performance targets. 49 U.S.C. 5303(j)(2)(D), 5304(g)(4).

The integrated planning process mandated by MAP-21 and the FAST Act should result in States and MPOs being able to identify investment and management strategies to improve or preserve the condition of transit capital assets in order to achieve and maintain a state of good repair.

FTA strongly encourages transit providers, States, and MPOs to set meaningful progressive targets, based on creative and strategic leveraging of all available financial resources. Although the law does not provide FTA with the authority to reward transit providers for meeting a performance target, or impose penalties for missing a

performance target, FTA believes that the process of setting targets and measuring progress reflects the increased expectations for improving transit safety.

Chapter IV - Managing Safety Risk and Assuring Safe Performance

FTA will apply the principles and methods of SMS to drive activities that mitigate risk and improve the safety performance of public transportation. FTA activities will guide, support, and monitor the implementation of the SMS framework across the transit industry. Using a risk-based oversight approach, FTA will initially focus on data collection and ongoing communication to support the analysis and identification of nationwide safety trends.

FTA will rely on several different tools to communicate actions to improve safety performance within the public transportation industry including future iterations of the Plan, rules, safety directives, safety advisories, training, establishment of safety performance standards and tasking to the Transit Advisory Committee for Safety (TRACS).

FTA SAFETY DIRECTIVES

Section 5329 provides FTA with several explicit authorities to administer the Safety Program and to take enforcement actions, including issuing directives. The Public Transportation Safety Program Rule (49 CFR part 670) establishes two types of directives—general directives and special directives. General directives are generally applicable and will be issued through the *Federal Register* and subject to public comment. Special directives apply to one or more named entities based on a specific set of facts. FTA will issue special directives directly to the named recipient(s).

For more information on the procedural rules related to the issuance of a general or special directive, please refer to the Public Transportation Safety Program rule at https://www.gpo.gov/fdsys/pkg/FR-2016-08-11/pdf/2016-18920.pdf.

FTA SAFETY ADVISORIES

FTA has issued several Safety Advisories to the public transportation industry. An advisory is a notice from FTA to the transit industry that recommends a particular action to mitigate an existing or potential hazard or risk. While compliance is not mandatory, FTA strongly encourages transit agencies to take the actions recommended in an advisory.

FTA has issued the following advisories to the transit industry:

Contact Rail (Third Rail) System Hazards (FTA Safety Advisory 16-2, May 16, 2016)

Safety Advisory 16-2 requests information from State Safety Oversight Agencies regarding the condition and safety performance of contact rail (third rail) traction power electrification systems at the Rail Fixed Guideway Public Transportation Systems in their jurisdictions.

Stop Signal Overruns (FTA Safety Advisory (FTA Safety Advisory 16-1, April 12, 2016)

Safety Advisory 16-1 requests that State Safety Oversight Agencies (SSOAs) work with their Rail Fixed Guideway Public Transportation Systems (RFGPTS) to obtain information regarding stop signal overruns during calendar year 2015.

Audit All Rail Fixed Guideway Public Transportation Systems (RFGPTS) with Subway Tunnel Environments (FTA Safety Advisory 15-1, June 17, 2015)

Safety Advisory 15-1 informs rail fixed guideway public transportation systems (RFGPTS) of planned audits to be conducted by State Safety Oversight Agencies (SSOAs). This safety advisory identifies specific areas of concern identified by the National Transportation Safety Board (NTSB) in regards to subway tunnel environments.

Vintage/Heritage Trolley Vehicle B and K Operating Controllers (FTA Safety Advisory 14-3, August, 1, 2014, updated August 6, 2014)

Safety Advisory 14-3 advised rail transit agencies that operate reconditioned vintage/heritage trolley vehicles manufactured before January 1956 of the risk of fire

with B and K operating controllers. The advisory refers operators to the APTA industry standard and the California Public Utilities Commission's General Order on the topic.

Verification of Rail Vehicle Safe Stopping Distances in Terminal Stations (Safety Advisory 14-2, June 12, 2014)

Safety Advisory 14-2 alerted rail transit operators of the need to assess the adequacy of safe stopping distances for rail transit trains in emergency braking in terminal stations. The advisory urges each rail transit agency to immediately conduct a review of the configuration of terminal stations in order to verify that designed safe braking distances address the actual operating conditions of these stations.

Redundant Protection to Protect Unintended Train Movement in Rail Yards (Update to Urgent Safety Advisory 10-4-13, Mar. 10, 2014)

FTA issued an update to the Urgent Safety Advisory following the publication of NTSB's preliminary report recommending FTA issue an advisory asking all rail transit properties to review their operating and maintenance procedures for stored unoccupied cars to ensure the propulsion and brake systems are left in a condition that would not facilitate unintended movement and that redundant means of stopping unintended rail car movements are used. The update recommends that each rail transit agency:

- Conduct a safety risk assessment to evaluate the adequacy of practices and procedures in place to manage the movement and storage of out-of-service railcars in yards and maintenance facilities.

- Review procedures for cleaning electrical equipment, with special attention to conduit entry points and other areas susceptible to unintended water intrusion or contamination from the cleaning process.

- Document the results of the assessments, and take action to address any identified concerns or issues requiring further investigation.

Right-of-Way Worker Protection (Safety Advisory 14-1, Dec. 31, 2013)

Safety Advisory 14-1 requested that State Safety Oversight (SSO) agencies coordinate with the rail transit agencies in their jurisdiction to identify current practices in place to

protect roadway workers, and conduct a formal hazard analysis regarding workers' access to the roadway and how the protections identified address the consequences associated with each hazard.

Unintended Train Movements (Urgent Safety Advisory, Oct. 4, 2013)

FTA issued an Urgent Safety Advisory instructing rail transit agencies to immediately review their own operating practices to utilize redundant train stopping mechanisms such as wheel chocks and/or derails in response to the NTSB's safety recommendation R-14-03.

FTA's safety advisories are available at **https://www.transit.dot.gov/regulations-and-guidance/safety/transit-safety-oversight-tso.**

VOLUNTARY MINIMUM VEHICLE SAFETY PERFORMANCE STANDARDS FOR PROCUREMENT OF HEAVY AND LIGHT RAIL[15]

Many public transportation agencies already follow voluntary consensus-based standards developed by APTA and other organizations. While compliance with the standards is not mandatory, FTA strongly encourages all public transportation agencies to consider adopting these voluntary, consensus-based standards and recommended practices included herein. As FTA segues towards the implementation of mandatory requirements through the Federal rulemaking process, it is committed to working with public transportation officials to develop rules ensuring that all public transportation agencies, regardless of size, may confidently procure assets that are safe and improve the safety potential of the public transportation industry.

Recent high-profile accidents involving light rail and heavy rail transit vehicles have highlighted the need for rail vehicle safety standards. In several of these accidents, vehicle crashworthiness contributed to injuries and casualties.[16] Furthermore, NTSB has

[15] These standards do not apply to heritage and vintage streetcar systems, inclined planes, cable cars, or monorails/automated guideway systems, nor do they apply to bus or paratransit service, though FTA reserves the right to issue subsequent regulations to these vehicles and their safe operation.
[16] WMATA's Ft. Totten crash, June 22, 2009; WMATA's Woodley Park/Adams Morgan crash, November 3, 2004, and MBTA's Newton Green Line crash, May 28, 2008.

recommended, among other things, that crashworthiness be addressed by FTA and the transit industry, along with implementation of positive train control systems.

In light of these factors, FTA strongly encourages that agencies consider the following rail vehicle safety standards when procuring heavy and light rail vehicles. They address vehicle crashworthiness, fire-life safety, vehicle data recorders, and emergency lighting and signage. These voluntary standards reflect existing best practices and effectively address several NTSB recommendations:

American Society of Mechanical Engineers (ASME) Safety Standard for Structural Requirements for Heavy Rail Vehicles (ASME RT-2 2008).[17] This standard addresses part of NTSB recommendation R-06-06 by recommending crashworthiness standards for rail vehicles operated in heavy rail transit systems.

ASME Safety Standard for Structural Requirements for Light Rail Vehicles (ASME RT-1 2009).[18]This standard addresses crashworthiness for rail vehicles operated in light rail transit systems.

Institute of Electrical and Electronics Engineers (IEEE) Standard for Rail Transit Vehicle Event Recorders (1482.1-2013).[19] This standard addresses NTSB recommendation R-02-019, which recommends event data recorders meeting this standard be installed on new, and retrofitted onto existing rail transit vehicles to facilitate accident investigations and causal analysis.

Emergency Lighting System Design for Rail Transit Vehicles (APTA RT-S-VIM-20-10).[20] This standard establishes minimum performance standards for emergency lighting for rail transit vehicles. This standard, used in conjunction with Emergency Signage for Rail Transit Vehicles and Low-location Emergency Path Marking for Rail Transit Vehicles, is intended to facilitate safe egress routes, paths, and exits for passengers aboard rail transit vehicles. This standard addresses NTSB recommendation R-06-05.

[17] http://files.asme.org/Catalog/Codes/PrintBook/28205.pdf.
[18] http://files.asme.org/Catalog/Codes/PrintBook/28205.pdf.
[19] http://standards.ieee.org/findstds/standard/1482.1-2013.html.
[20] http://www.apta.com/resources/standards/Documents/APTA-RT-VIM-S-020-10.pdf.

Emergency Signage for Rail Transit Vehicles (APTA RT-S-VIM-021-10).[21] This standard establishes minimum performance standards for emergency signage for rail transit vehicles to enable passengers to identify safe egress. Used in conjunction with Emergency Lighting System Design for Rail Transit Vehicles and low-location Emergency Path Marking for Rail Transit Vehicles, this standard is intended to facilitate safe egress routes, paths, and exits for passengers aboard rail transit vehicles. This standard addresses NTSB recommendation R-06-05.

Low-Location Emergency Path Marking for Rail Transit Vehicles (APTA RT-S-VIM-022-10).[22] This rail vehicle standard sets minimum standards for emergency path lighting for rail transit vehicles. Used in conjunction with Emergency Lighting System Design for Rail Transit Vehicles and Emergency Signage for Rail Transit Vehicles, this standard is intended to facilitate safe egress routes, paths, and exits for passengers aboard rail transit vehicles. This standard addresses NTSB recommendation R-06-05.

National Fire Protection Association Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130).[23] In response to NTSB's urgent recommendation R-15-7, this standard establishes fire protection and life safety requirements for underground, surface, and elevated fixed guideway transit and passenger rail systems. Additionally, FTA highly recommends implementation of Recommended Fire Safety Practices for Rail Transit Materials Section[27] as prepared by the National Association of State Fire Marshals for FTA.

While FTA encourages rail transit agencies to make enhancements during vehicle retrofits and overhauls, as well as when purchasing new vehicles, FTA is aware of cost barriers that may limit improvements on existing vehicles in revenue service, and encourages transit agencies to adopt these voluntary standards to the extent practicable.

On August 1, 2016, FTA published a final rule for bus testing to improve the process of ensuring the safety and reliability of new transit buses.[24] The rule satisfies requirements in MAP-21 to establish minimum performance standards, a standardized scoring

[21] http://www.apta.com/resources/standards/Documents/APTA-RT-VIM-S-021-10.pdf.
[22] http://www.apta.com/resources/standards/Documents/APTA-RT-VIM-S-022-10.pdf.
[23] http://catalog.nfpa.org/2014-NFPA-130-Standard-for-Fixed-Guideway-Transit-and-Passenger-Rail-Systems-P1229.aspx?icid=B484.
[24] https://www.gpo.gov/fdsys/pkg/FR-2016-08-01/pdf/2016-17889.pdf.

system, and a pass-fail threshold that will better inform local transit agencies as they evaluate and purchase buses. Vehicles procured with federal funds are required to pass a test to meet certain thresholds for structural integrity, safety, maintainability, reliability, fuel economy, emissions, noise, and performance.

VOLUNTARY MINIMUM SAFETY PERFORMANCE STANDARDS FOR OPERATIONS

Operational safety standards also contribute to a public transportation system's overall performance. FTA strongly encourages recipients to adopt minimum standards to improve their operational safety. FTA believes that the following operational standards reinforce FTA's commitment to safety and aligns FTA with the other DOT modal administrations that have already instituted regulations addressing issues like distracted driving and operator fatigue. The following voluntary minimum operational standards are part of the APTA standards development program:

APTA-RT-OP-S-017-11, Electronic Device Distraction Policy (NTSB's Top Ten Most Wanted).[25] This standard applies to rail transit systems. The standard provides minimum requirements for the use and prohibition of electronic devices for rail transit operators and employees working on or around rail tracks and facilities.

APTA-RT-OP-S-016-11, Roadway Worker Protection Program Requirements (R-12-32 to -35; R-13-39 to -40, and R-14-36 thru -43).[26] This standard sets minimum requirements to ensure the safety of roadway workers at a rail transit system.

APTA-RT-OP-S-004-03, Standard for Work Zone Safety (R-12-32 to -35; R-13-39 to -40, and R-14-36 thru -43).[27] This standard establishes minimum requirements for a rail transit system's Work Zone Safety Rules and Procedures, and applies to both mainline and yard operations.

APTA-RT-OP-S-010-03, Standard for Contractor's Responsibility for Right of Way Safety (R-12-32 to -35; R-13-39 to -40, and R-14-36 thru -43).[28] This standard identifies

[25] http://www.apta.com/resources/standards/Documents/APTA-RT-OP-S-017-11.pdf.
[26] http://www.apta.com/resources/standards/Documents/APTA-RT-OP-S-016-11.pdf.
[27] http://www.apta.com/resources/standards/Documents/APTA-RT-OP-S-004-03.pdf.
[28] http://www.apta.com/resources/standards/Documents/APTA-RT-OP-S-010-03.pdf.

requirements for a contractor's responsibilities for knowing, complying with, and enforcing a rail transit system's guidelines, rules and procedures. This standard governs a contractor's activities when performing inspection, investigation, design, construction and/or any other work on or near a rail transit system.

APTA-RT-OP-S-011-10, Rule Compliance (R-2-18).[29] This standard applies to rail transit systems that operate light and heavy rail systems and sets minimum requirements for operating rules.

TRANSIT ADVISORY COMMITTEE FOR SAFETY (TRACS)

TRACS is a formal advisory committee that provides FTA advice on safety issues, as tasked by the FTA Administrator. TRACS membership represents a cross-section of stakeholders in transit safety – representing transit agencies, State Safety Oversight agencies, labor unions, and safety research experts. Information about TRACS responsibilities, actions, and reports are available at https://www.transit.dot.gov/tracs-work-group.

A selection of reports developed by TRACS is presented below:

Establishing a Fatigue Management Program for the Bus and Rail Transit Industry – TRACS was tasked by the FTA Administrator with developing recommendations for FTA on the elements that should comprise a Safety Management System (SMS) approach to a fatigue management program. Using an SMS approach, the report presents TRACS' recommendations regarding the components of a successful fatigue management program, including hours of service (HOS), shift scheduling, fatigue prevention and awareness training, fitness-for-duty medical evaluations and screenings, work and vehicle environment design, safety culture, incident investigation, and data collection.

Preventing and Mitigating Transit Worker Assaults in the Bus and Rail Transit Industry – In 2014, the (FTA) Administrator tasked the Transit Advisory Committee for Safety (TRACS) with developing recommendations for FTA on the elements that should

[29] http://www.apta.com/resources/standards/Documents/APTA-RT-OP-S-011-10.pdf.

comprise a Safety Management System (SMS) approach to preventing and mitigating transit worker assaults. Best practice recommendations included:

- Installing protective barriers, video surveillance, automatic vehicle location (AVL) systems, and overt or covert alarms on bus and rail transit vehicles;
- Training safety-sensitive employees about how to de-escalate potentially violent situations, the important of reporting assaults, and the standard agency response to reports of assault;
- Educating the public about reporting assaults by conducting public awareness campaigns, providing resources and incentives for passengers to report assaults, and meeting with passengers to discuss strategies for preventing assaults;
- Providing support for transit workers by offering psychological support and post-incident counseling, responding to every report of assault or other serious incident, and involving transit workers in safety committees;
- Enforcing transit agency policy by posting passenger codes of conduct, suspending service for assailants, posting police officers on transit vehicles and property in high-risk areas, providing legal support for transit workers who file complaints, and collaborating with other agencies and organizations to develop social safety plans and advocate for changes in state and local legislation to better address assaults against transit; and
- Collecting data regarding the number, location, times, and types of assaults.

Implement SMS in Rail Transit Systems – Originally, TRACS was established to address weaknesses in rail transit system oversight and provide guidance to FTA as to how best to approach its enhanced oversight role and improve rail system safety. TRACS recommended that FTA adopt SMS for rail transit systems, and recommended that FTA proceed with a set of actions to support SMS implementation.

Close Call Reporting Systems – TRACS recommended that FTA initiate a work group comprised of stakeholders to facilitate the development of a confidential, non-punitive, close call safety reporting system, beginning with a pilot program. FTA is proceeding with this recommendation as it develops an SMS Implementation Program.

Contents of the National Safety Plan and the Agency Safety Plans – Following the passage of MAP-21, TRACS developed recommendations regarding the elements that should be contained in each of these sets of plan requirements, and FTA incorporated

TRACS input during development of this plan and the rulemaking documents. TRACS recommended that FTA base the plans on SMS, establish a means to assess and protect sensitive data, establish training and requirements for State Safety Oversight and provide tools to the industry to communicate the performance-based approach that underpinned Congress' intent in this legislation.

Currently, TRACS is researching, and in the process of developing recommendations for FTA that address Improving Safety Culture and Safety Data and Performance Management. The current taskings request TRACS members to (1) develop practical recommendations detailing how processes, practices, tasks, and individual employee responsibilities can support a strong safety culture and (2) develop recommendations that help define the functional requirements and data elements of a comprehensive safety data collection and analysis framework to support improvements in the transit industry's safety performance respectively.

How will the National Safety Plan be updated?

FTA has committed to reviewing and updating this Plan periodically. At a minimum, FTA will analyze transit industry safety performance data, refine national safety performance measures, and as a result of this analysis, report on the progress of the national implementation of SMS. FTA will report on national safety performance trends identified through data collected, safety audits, examinations, and inspections.

FTA will also share any lessons learned on the status of safety culture in the public transportation industry through training and communication of best practices.

Appendix A

Glossary

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

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

Event means an accident, incident, or occurrence.

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

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

Major Mechanical Failures are failures caused by vehicle malfunctions or subpar vehicle condition which requires that it be pulled from service.

Passenger means a person other than an operator who is on board, boarding, or alighting from a vehicle on a public transportation system for the purpose of travel.

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

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

Safety Management System (SMS) means the formal, top-down, data-driven, 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 objective means a general goal or desired outcome related to safety.

Safety performance means an organization's safety effectiveness and efficiency, as defined by safety performance indicators and targets, measured against the organization's safety objectives.

Safety performance indicator refers to a data-driven, quantifiable parameter used for monitoring and assessing safety performance.

Safety Performance Measure is 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.

Safety performance monitoring means activities aimed at the quantification of an organization's safety effectiveness and efficiency during service delivery operations, through a combination of safety performance indicators and safety performance targets.

Safety performance target means a quantifiable level of performance or condition, expressed as a value for a given performance measure, achieved over a specified timeframe related to safety management activities.

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

Safety risk means the assessed probability and severity of the potential consequence(s) of a hazard, using as reference the worst foreseeable, but credible, outcome.

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

Safety Risk Management means a process within a Rail Transit Agency's Safety Plan for identifying hazards, assessing the hazards, and mitigating safety risk.

Safety risk mitigation means the activities whereby a public transportation agency controls the probability or severity of the potential consequences of hazards.

Safety risk probability means the likelihood that a consequence might occur, taking as reference the worst foreseeable–but credible–condition.

Safety risk severity means the anticipated effects of a consequence, should it materialize, taking as reference the worst foreseeable–but credible–condition.

Serious Injury means any injury which: (1) Requires hospitalization for more than 48 hours, commencing within seven days from the date of the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (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 of Good Repair means the condition in which a capital asset is able to operate at a full level of performance.

Vehicle Revenue Miles (VRM) Means the miles that vehicles are scheduled to or actually travel while in revenue service. Vehicle revenue miles include:

- Layover / recovery time. Exclude:
- Deadhead;
- Operator training;
- Vehicle maintenance testing; and
- School bus and charter services.

Appendix B

Sample

Safety Management Policy Statement

The management of safety is one of our core business functions. [Transit agency] is committed to developing, implementing, maintaining, and constantly improving processes to ensure that all our transit service delivery activities take place under a balanced allocation of organizational resources, aimed at achieving the highest level of safety performance and meeting established standards.

All levels of management and all employees are accountable for the delivery of this highest level of safety performance, starting with the [Chief Executive Officer (CEO)/Managing Director/or as appropriate to the organization].

[Transit agency] commitment is to:

• **Support** the management of safety through the provision of appropriate resources, that will result in an organizational culture that fosters safe practices, encourages effective employee safety reporting and communication, and actively manages safety with the same attention to results as the attention to the results of the other management systems of the organization;

• **Integrate** the management of safety among the primary responsibilities of all managers and employees;

• **Clearly define** for all staff, managers and employees alike, their accountabilities and responsibilities for the delivery of the organization's safety performance and the performance of our safety management system;

• **Establish and operate** hazard identification and analysis, and safety risk evaluation activities, including an employee safety reporting program as a fundamental source for safety concerns and hazard identification, in order to eliminate or mitigate the safety risks of the consequences of hazards resulting from our operations or activities to a point which is consistent with our acceptable level of safety performance;

• **Ensure** that no action will be taken against any employee who discloses a safety concern through the employee safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;

• **Comply** with, and wherever possible exceed, legislative and regulatory requirements and standards;

• **Ensure** that sufficient skilled and trained human resources are available to implement safety management processes;

• **Ensure** that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are allocated only tasks commensurate with their skills;

• **Establish and measure** our safety performance against realistic and data-driven safety performance indicators and safety performance targets;

• **Continually improve** our safety performance through management processes that ensure that appropriate safety management action is taken and is effective; and

• **Ensure** externally supplied systems and services to support our operations are delivered meeting our safety performance standards.

_____

[Accountable Executive]

_____

Date