Agency Safety Plan

Revised Calendar Year 2024

Effective Calendar Year 2025

Document ID: SAF-001 Revision No.06 Revision Date: November 20, 2024
Tri-County Metropolitan Transportation District of Oregon
Safety & Security Division
101 SW Main Street, Portland, OR 97204

General Manager's Safety Policy Statement

The Tri-County Metropolitan Transportation District of Oregon strives to provide safe, reliable, clean, quality transit service that increases mobility and accessibility while strengthening community and economic prosperity. Safety is the foundation upon which TriMet supports all functions, including planning, design, construction, maintenance, and operations of our transit system. To meet these goals, we have established five safety objectives to be achieved by implementing a Safety Management System (SMS):

- To avoid loss of life, reduce injury, and minimize damage or property loss;
- To administer and oversee agency-wide safety risk management and safety assurance programs;
- To establish awareness of and promote safety to employees and contractors;
- To provide for the identification and elimination or control hazards through a systematic approach of auditing and analyzing the operational system and work environment; and
- To minimize hazards in new facilities, safety must be built into the design through applicable codes and standards, sound engineering judgment, and the implementation of a detailed safety certification program.

TriMet Safety Department, housed within the Safety & Security Division, is directed and empowered to develop, implement, and administer a comprehensive Public Transportation Agency Safety Plan across appropriate TriMet modes. The plan emphasizes preventative activities and establishes the responsibility of each department to identify, control, and resolve hazards during the design, development, and operational phases of transit service. In addition, where it is determined that unsafe conditions or practices exist, the Chief Safety Officer (CSO) has the authority to order such conditions corrected or practices halted. This includes the interruption of revenue service if conditions warrant.

Accountability for safety rests with each employee, supervisor, and manager; however, as General Manager (GM), I have designated the Chief Operating Officer (COO) as the Accountable Executive (AE); and whom, ultimately, is accountable for the agency's safety performance across all modes.

Sam Desue, Jr.
General Manager

11-19-24
Date

Executive Signatures

Following general requirements and guidelines from *49 Code of Federal Regulations Part 673*, in compliance with the Fixing America's Surface Transportation Act, and to meet Federal Transit Administration and State Safety Oversight requirements, we have contributed to the development of our Agency Safety Plan and adopted it as our governing System Safety Plan. We also understand that we have the authority and responsibility for the day-to-day implementation and operation of our SMS.

As Senior Leaders of TriMet, we have reviewed and endorsed our Agency Safety Plan.

11-19-24
Sam Desue, Jr. Date
General Manager

11-19-24
Bonnie Todd Date
Chief Operating Officer
Accountable Executive

11-19-24
Andrew Wilson Date
Executive Director, Safety & Security
Chief Safety Officer

11.19.24
Inessa M. Vitko Date
Executive Director, Transportation

11/19/24
John Weston Date
Executive Director, Maintenance

11-18-24
Dan Blair Date
Executive Director, Transit Systems & Asset Support

Nancy Young-Oliver 11.19.2024
Nancy Young-Oliver Date
Chief Financial Officer

11.20.24
Sean Batty Date
Interim Executive Director,
Engineering & Construction

Infrastructure Investment & Jobs Act Safety Committee Signatures

Safety is our agency's highest core value, and we support cultivating a solid safety culture at all levels throughout TriMet. We are committed to advancing the implementation of the Agency Safety Plan and achieving its safety goals and objectives through continually improving processes to ensure that all operations are safe and reliable for our employees, contractors, customers, and the public. To this end, we have contributed to developing and adopting our Agency Safety Plan as our governing System Safety Plan.

As TriMet's joint labor-management committee designated under the Infrastructure Investment & Jobs Act, we have reviewed and endorsed our Agency Safety Plan.

20 NOV 2024

Robert Romo — Date
Manager, Rail Maintenance Equipment
Chairperson

11/20/24

Craig McDonald — Date
Director, Safety & Environmental Services
Vice-Chairperson

Record of Revisions

Date Published	Ver.	Section(s)	Description of Revision	Approved By
9/22/2020	001	Agency	ASP was reviewed and approved by TriMet's Accountable Executive Leadership.	Sam Desue, Jr. & Exec. Directors
10/06/2021	002	Agency	ASP reporting structure and leadership signatures. Formatting changes, Cover and Signature Page, Record of Revisions, 506 Competency Management System program description, removal of "Southwest Corridor," and GM Policy Statement.	Marla Blagg
10/12/2022	003	Cover page Record of Revisions Sections 1.6, 2.1, 2.3, 3.5.3, 3.5.4, 4.0--4.1, 5.1.2--5.2.1, 5.7, 6.1.1, 7.0--7.3, 15, & 16. Figures 2, 3, 4, & 5. Table 2	Updated cover page, revised Record of Revisions to reflect only revisions made. Added ODOT's *Program Standard* (rev 2, 2021) verbiage, incorporated items from Bipartisan Infrastructure Law, clarified annual review process, added SMS Leadership Team, revised Safety Risk Management section to accurately reflect processes, revised annual Safety Reviews to reflect revisions to *OAR 741-060-0070*, updated SMS implementation plan	Andrew Wilson
06/15/2023	004	Cover page, GM Policy Statement, Foreword and Sections: 1.5, 1.6, 1.7, 2.2, 3.1, 3.5, 4.2.1, 4.2.3, 4.2.4, 4.3, 4.3.1, 4.3.3, 4.5, 5.1.2, 5.2, 5.4.2, 6.2, 6.3.2, 6.3.4, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 14	Reformatted document, IIJA/BIL Surface Transportation Bill Laws clarification, included IIJASC, *49 CFR 214* title changed; COO is the AE; Clarified review cycle, training access, distribution, and availability to information; Combined and expanded committee language; Clarified hazard categorization, Hazard Rating Index, thresholds, and levels of escalation; Clarified accident reporting and investigation; Added details about Internal Safety Reviews; Added visibility impairment as consideration for assault barriers; Expanded CAP process; Added overview of de-escalation training requirements.	IIJASC GM
6/15/2024 & 11/20/24	006	Document wide	Reformatted all sections; deleted Reference sections Hazard Analysis Approaches, Example Hazard Log, SSO Elements Within ASP, Audit description, and Reference Documents; removed duplicative language, updated the COO's (AE) roles, updated RACI; added department descriptions; revised all tables and figures; revised probability matrix; updated CCMP description; added requirements listed under 49 USC 5307 & 5329, added a list of Acronyms.	IIJASC GM COO Ex. Directors

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Foreword

The Federal Transit Administration (FTA) adopted the SMS as its regulatory framework for continual safety improvement in the transportation industry. The SMS model is designed to ensure a top-down, organization-wide approach to manage safety risks and ensure effectiveness of controls.

The Tri-County Metropolitan Transportation District of Oregon (TriMet, District, we or our) operations depend upon the proficiency and well-being of employees and maximizing capital resources. To ensure the safety and preservation of these resources, we have adopted a comprehensive SMS, with system safety at its foundation, as the model for safety management and continual safety improvement.

SMS provides a structure for addressing expectations specified by Congress in the *Infrastructure Investment and Jobs Act* (*IIJA*), also known as the *Bipartisan Infrastructure Law* (*BIL*). This is the current federal transportation law with direct guidance on improving public transportation safety.

The following shows a brief timeline of federal surface transportation laws and reauthorizations amending the Federal Transit Laws codified in *49 United States Code (USC) Chapter 53*:

- 1987 *Surface Transportation and Uniform Relocation Assistance Act*
- 1991-1997 *Intermodal Surface Transportation Efficiency Act*
- 1998-2004 *Transportation Equity Act for the 21st Century*
- 2005-2009 *Safe, Accountable, Flexible, Efficient, Transportation Equity Act*
- 2010 *Reauthorization of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act*
- 2012-2015 *Moving Ahead for Progress in the 21st Century Act (MAP-21)*
- 2016-2020 *Fixing America's Surface Transportation (FAST) Act*
- 2022-2026 *Infrastructure Investment & Jobs Act (aka: BIL)*

SMS also provides tools and approaches to help FTA implement recommendations from the National Transportation Safety Board (NTSB) about transit safety and oversight improvements. Our *Agency Safety Plan* (*ASP*) complies with *49 Code of Federal Regulations (CFR) Part 673.11 (Part 673) General Requirements* and serves as an overarching framework guiding a coordinated, organization-wide effort to apply operating, technical, and risk management techniques and principles to conserve life and property, as well as to prevent and reduce mishaps and their consequences. FTA's SMS framework has four main components, see Figure 1:

Figure 1: Main Components of the Safety Management System

Our *ASP*:

- Applies to operations for bus fixed-route, paratransit, and light rail transit (LRT) services;
- States our philosophy and commitment to sustaining safe transit operations;
- Outlines safety activities to minimize risk and loss of resources, maximize safety, and provides for the documentation and verification of such activities;
- Integrates the safety function throughout our organization, from the general manager (GM) to managerial staff to front-line employees;
- Defines organizational safety responsibilities and accountabilities; and,
- Assesses opportunities for continual improvement aligned with the components of SMS.

We review our *ASP* annually, revise it as needed, and submit it to our Infrastructure Investment & Jobs Act Safety Committee (IIJASC) for approval, and Board of Directors (BOD) for adoption. Management teams of each department are responsible for implementing and ensuring the success of our *ASP*.

Our Westside Express Service (WES) commuter rail system is covered by a separate plan that conforms to the Federal Railroad Administration's (FRA) rule, *49 CFR Part 270*: *System Safety Program*.

Emergency Response requirements outlined in *§4.2.4* and *§4.2.5* of the SSO *Program Standard (ver. 2022),* and *Part 673.11(a)(6)* for emergency preparedness & response plan , document control, coordinated schedule, exercises, and drills will be covered in: the *Emergency Preparedness & Response Plan (EPRP)*, *Emergency Operations Pla*n, and the C*ontinuity of Operations Plan*. These plans are incorporated into the *ASP* by reference. Departments follow their location's site-specific red guide for emergency response actions.

1.0 Introduction

1.1 Purpose

Our *ASP* establishes a formal process that all TriMet departments must use to identify hazards associated with our system, eliminate, minimize, or control hazards, and prevent injuries, safety events, and other losses; and demonstrates our commitment to SMS as described in *Part 673* and follows ODOT's *Program Standard* and its four components (see Figure 1).

1.2 TriMet Mission & Values

Mission	Connect people with valued mobility options that are safe, convenient, reliable, accessible, and welcoming for all.
Values	Safety • Inclusivity • Equity • Community • Teamwork

1.3 System Description

We provide bus, light rail, and commuter rail services throughout Multnomah, Washington, and Clackamas counties. Our extensive rail and bus systems, as well as paratransit service, move more than 206,000 passengers per day. We are partially funded through *49 USC § 5307, § 5337, § 5310*, and *§ 5339* grants.

ASP § 7.0 lists a brief history of light rail system development, a summary of the modes of service, and an overview of TriMet facilities and vehicles.

1.4 *Agency Safety Plan:* Goal, Objective, Methods & Strategies

1.4.1 Goal

The District's goal is to design, construct, test, operate, and maintain a transit system that attains an optimum level of safety by effectively managing hazards and safety risk(s) (hereafter referred to collectively as risks). This goal is reflected throughout the planning, design, construction, operation, and maintenance phases. Our *ASP* is foundational for achieving this within our strategic business goals and constraints.

1.4.2 Objective

The primary objective of our *ASP* is to promote a robust safety culture through continual improvement of transit system safety by ensuring everyone in the organization can recognize, understand, report, and assist in mitigation efforts of actual or potential hazards or risks.

1.4.3 Methods & Strategies

Methods and strategies are intended to:

- Reduce system events by analyzing employee and passenger injuries;
- Reduce employee injuries through compliance with Oregon Occupational Safety & Health Administration (OR-OSHA) rules and TriMet safety requirements;
- Increase safety by using industry standards to identify, assess, evaluate, and mitigate hazards that may impact customer, employee, or operational safety;
- Incorporate safety, fire protection, and emergency management measures into transit system design criteria and specification development;
- Reduce collisions by analyzing bus and light rail vehicle (LRV) collisions and mishaps and recommending operational or design improvements;
- Train personnel in safety programs and ensure training certifications are up-to-date and maintained; and,
- Encourage employee participation in identifying and reporting hazards and risks.

1.5 *Agency Safety Plan* Development, Updates, & Retention

Our CSO is authorized by the AE to develop, implement, and administer the *ASP* with the AE's support and partnership per *Part 673.23(d)(2)*. The development and preparation of the *ASP* are done according to state and federal safety regulations. Modifications to these regulations may result in updates to the *ASP* to maintain conformance.

- FTA regulation: *49 CFR, Part 673, Public Transportation Agency Safety Plans (PTASPs)*
- ODOT regulation: *OAR 741-060-0010* through *0107* and *Program Standard*
- FRA regulations (applies to Orange Line's heavy rail interface and corridors): *49 CFR Part*:

  214 Railroad Workplace Safety Program
  217 Operational Testing Program
  219 Control of Drug and Alcohol Use
  220 Radio Communications
  225 Accident/Incident Reporting and Internal Control Plan
  228 Hours of Service (Controllers and Signal Maintainers only)
  233 Signal Systems Reporting (applicable only to the OPRR crossing)
  234 Systems for Telephonic Notification of Unsafe Conditions at Grade Crossings
  236 Railroad Signals Maintenance Standards (applicable only to the OPRR crossing)
  243 Training, Qualification, and Oversight for Safety-Related Railroad Employees

1.5.1 *Agency Safety Plan* Updates

The CSO is also responsible for the annual review to ensure our *ASP* remains current. Revisions are made to contemplate such considerations as changes in our transit system's operating configuration; the environment in which we operate; new or revised safety goals, objectives, policies, programs, or initiatives; new or revised regulations; management or organizational restructuring; defining responsibilities for accomplishing safety-related tasks; system changes including line extensions, new construction, or modification of existing vehicles, facilities, or system equipment; or significant changes to operational practices.

The following personnel and committees are responsible for initiating, developing, and submitting *ASP* updates to either the CSO or the Director of Safety Management Systems & Environmental Services (Safety Director):

- GM
- COO & AE
- Executive Director of Safety & Security & CSO
- Executive Director of Maintenance Operations
- Executive Director of Transportation Operations
- Executive Director of Transit Systems & Asset Support
- Executive Director of Engineering & Construction (E&C)
- Executive Director of Human Resources & Labor Relations
- Senior Management
- Transit Change & Review Committee (TCRC)
- Infrastructure Investment & Job Acts Safety Committee

We review our *ASP* at least annually. The Record of Revisions summarizes changes made by date and document version number. The CSO, or designee, is responsible for working with the Infrastructure Investment & Job Acts Safety Committee (IIJASC) to review and approve any changes (under *49 U.S. Code §5329(d)(1)(A)*).

Updates to the *ASP* are subject to review and approval by ODOT under its *Program Standard § 4.1.3*. When we believe the *ASP* is in final form and the appropriate signatories have signed, we submit a copy to ODOT for review. ODOT has 60 calendar days after submittal to conduct its review. If additional revisions are needed, we resubmit the sections to ODOT for approval before proceeding.

If no additional revisions are needed, ODOT will provide written tentative approval to us for the *ASP*, and we will move forward with preparing a resolution for adoption for the BOD (under *49 U.S. Code §5329(d)(1)(A)*). After the BOD has adopted the final *ASP,* copies of the *ASP* and resolution are sent to ODOT, and we will ensure transmission if a receipt from ODOT isn't secured within two business days after. ODOT will provide final written approval of the *ASP* and it will go into effect on January 1st of any given year.

In accordance with *49 USC § 5307(c)(l)(L), 49 USC § 5329(d)(l),* and *49 CFR Part 673.13*, our *ASP* is certified by the Executive Director of Safety & Security, the last date of certification was April 9, 2024, and submitted to the Transit Award Management System on April 22, 2024, by the Director of Legal Services.

1.5.2 *Agency Safety Plan* Distribution

Following ODOT's formal approval, electronic copies will be emailed to IIJASC, the TCRC, and the Workplace Safety Committees (WSCs), and a copy will be made available to TriMet employees by posting to the SAF's webpage on TriNet, our intranet site. Notice of the executed *ASP* is broadcast to all employees, along with a link to the document. An educational communication, separate from the update, is made once per year. These processes will be initiated and supervised under the direction of the Manager of Regulatory Compliance & Safety Assurance (MRCSA).

1.5.3 Retention

A copy of each adopted *ASP* is maintained in SAF's office for five years following the year in which it was executed (*Part 673.31)*. SAF retains documents describing the programs, policies, and procedures used to carry out the *ASP* as a whole or by reference. The records are retained for three years and provided upon request.

2.0 Authority of the Oregon Department of Transportation

FTA administers funds for capital projects and is a federal regulator as defined by *Parts 670* & *673*. FTA regulates rail transit agencies in the United States by granting states authority to develop safety oversight programs, as defined by *Part 674*, and works cooperatively to ensure that LRT operations comply with state and federal requirements. The Oregon Legislature designated ODOT as the SSOA for Oregon, which is authorized under *Oregon Revised Statute 824.045: Department establishment of a system safety program for rail fixed guideway system*. ODOT is responsible for annually reviewing and approving our ASP. FTA regularly audits ODOT to assess its compliance with the general requirements. Annually, we certify our compliance *with OAR Chapter 741, Division 60, and Parts 673* & *674* in our year-end report to ODOT.

2.1 Oregon Department of Transportation's *Program Standard* Requirements

On July 19, 2021, ODOT published revisions to *OAR Chapter 741*, *Division 60*, governing the safety of rail fixed guideway public transportation systems (RFGPTS) within Oregon's jurisdiction. *Division 60* incorporates FTA regulations *Parts 673* (July 2018) & *674* and removes verbiage from *Part 659*. Subsequently, ODOT published a revised *Program Standard* (ver. 3) on November 1, 2022, to reflect the changes made to *Division 60*. The *Program Standard's Notification Matrix* provides additional clarification and guidance about definitions, rules, and establishes reporting requirements for selected Incidents and Occurrences.

2.2 Federal Transit Administration Requirements

Part 673 establishes requirements for PTASPs to carry out explicit statutory mandates of *MAP-21 Act* (Pub. L. 112-141; July 6, 2012), which was reauthorized by the *FAST Act* (Pub. L. 114-94; December 4, 2015).

The rule requires RFGPTS to adopt SMS principles and methods; to develop, certify, implement, and update PTASPs; and coordinate PTASP elements with other FTA programs and rules, as specified in *49 USC §5303, §5304,* and §*5329*. *Part 673* first became effective on July 19, 2019, and ODOT approved our *ASP* on September 30, 2020. The reauthorization of surface transportation programs builds upon previous programs with amendments focused on improving the safety of all public transit systems that receive federal funds. The current *Surface Transportation Act* is the *Infrastructure Investment & Jobs Act*, which essentially preserves *FAST Act* core formula programs with modifications to better address sustainability, resiliency, safety, and equity.

2.3 Oregon Health Authority

Under *673.25 Safety Risk Management* (SRM), we implement policies and procedures consistent with guidelines established by the Oregon Health Authority to minimize exposure to infectious diseases.

3.0 SMS Component I – Safety Policy

This section embeds our commitment to integrating safety into all aspects of our operations by defining safety objectives, documenting accountabilities and responsibilities for safety through all levels of staff, and advancing a robust culture of safety through the scope and activities of ongoing safety-dedicated committees.

Safety is the foundation on which rests the following TriMet initiatives:

- *Support our economy:* transporting employees to work and customers to businesses.
- *Ease congestion:* Reducing public reliance on peak-period and single-occupant driving.
- *Provide mobility for those with few options*: Providing a critical service for seniors, people with disabilities, school kids, low-income households without cars, and others with few mobility options; getting them to work, school, and other needs.
- *Helping shape the future of our region*: Delivering service and capital projects that help attract residents, businesses, and development to centers, main streets, and corridors that communities have identified as future growth areas.

3.1 Safety Policy Statement

Safety is our organization's highest core value and an essential business function. Safety is one of TriMet's five Values in the Business Plan and Vision 2030. Safety is also a crosscutting priority in all five Pillars identified in Vision 2030. We are committed to developing, implementing, maintaining, and continually improving our processes and procedures to ensure the highest practicable level of safety performance. To support this, all transit service activities, from planning to operations, receive a balanced allocation of organizational resources.

We demonstrate our commitment by:

- Defining SMS performance responsibilities and accountabilities through all levels of staff;
- Valuing safety management as highly as other management systems by integration into the primary responsibilities of managers and staff;
- Supporting safety management with proper resources;
- Nurturing a just safety culture that fosters safe work practices and encourages staff to report actual or potential hazards or safety concerns;
- Implementing procedures for identifying and assessing the level of risk associated with hazards;
- Mitigating hazards that exceed acceptable levels of risk;
- Complying with state and federal regulations and TriMet safety requirements;
- Providing staff with adequate and relevant safety-related information and training;
- Establishing realistic safety performance goals and collecting sufficient data by which to measure our progress and achievements;
- Continually improving performance through oversight to ensure applicable practical actions are taken;
- Ensuring externally supplied systems and services meet TriMet's safety performance standards; and,
- Improving safety and security in all mobility options so riders and staff feel safe and secure.

We believe in a just culture. To that end, staff who act to prevent an injury or report a safety event, hazard, or concern will not be disciplined.

3.2 Organizational Structure

Per the *ASP*, each level of our organization is responsible for ensuring our operations provide for the safety of customers, the public, and our employees. The following organizational charts depict the structure of our agency and drills down to the Safety & Environmental Services Departments:

Figure 2: TriMet Organizational Chart

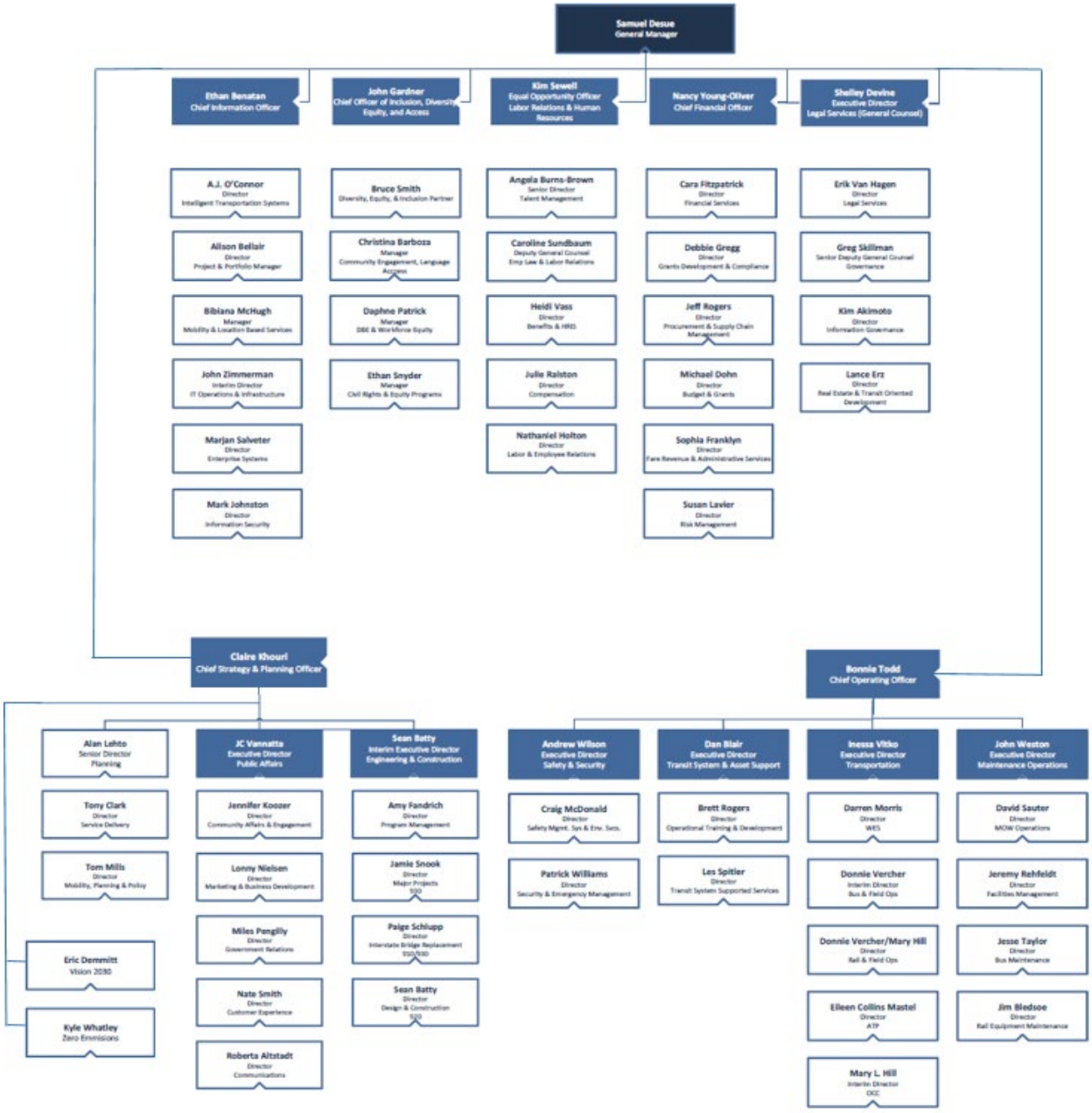


Figure 3: Office of the General Manager

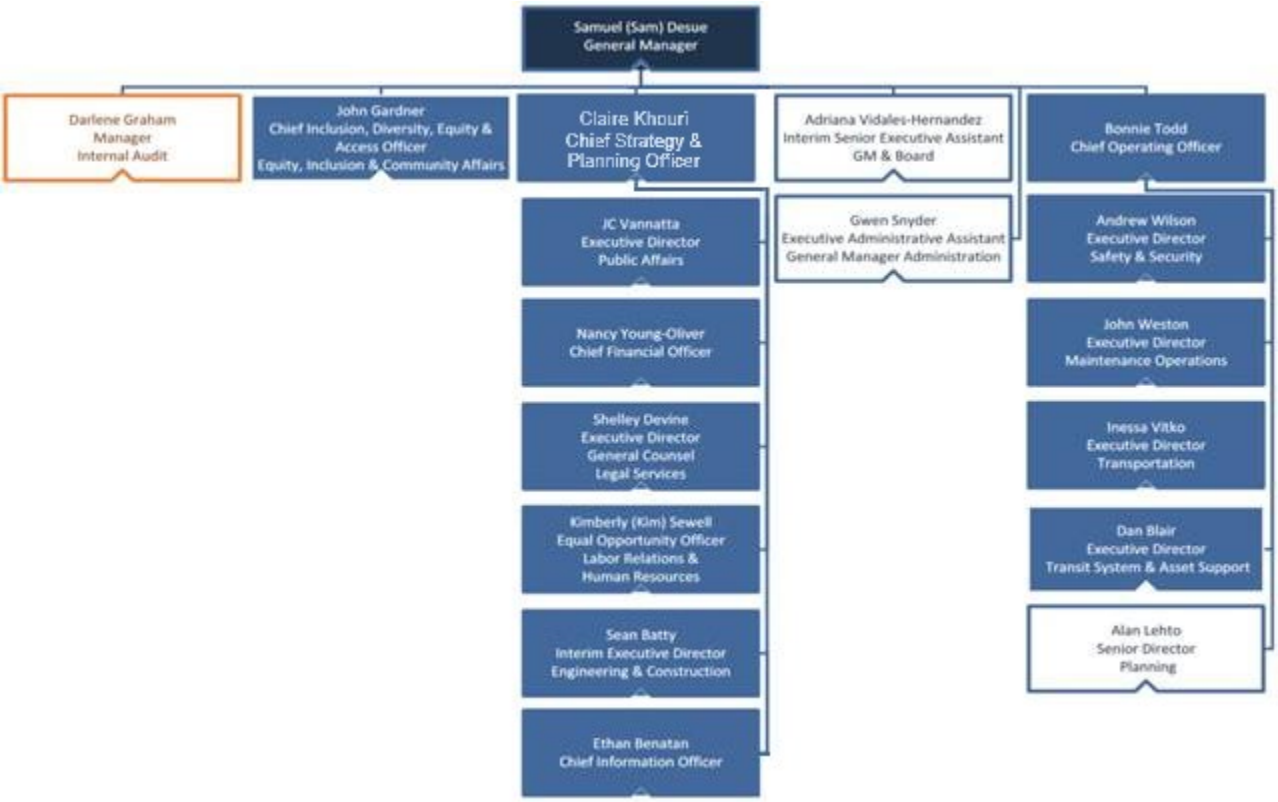


Figure 4: Office of the Chief Operating Officer

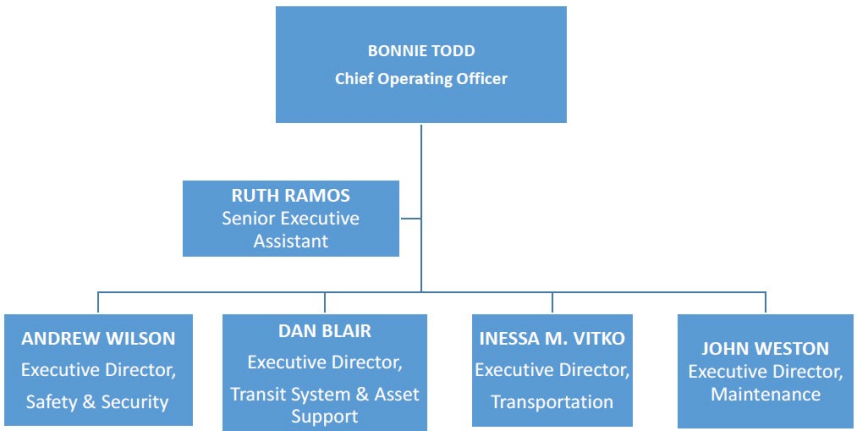


Figure 5: Safety & Security Division

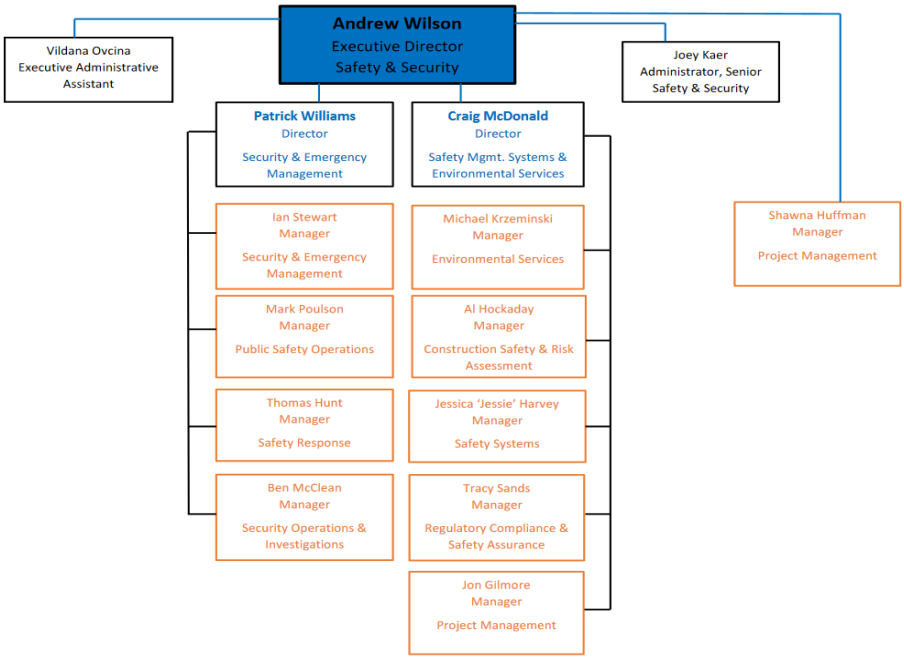
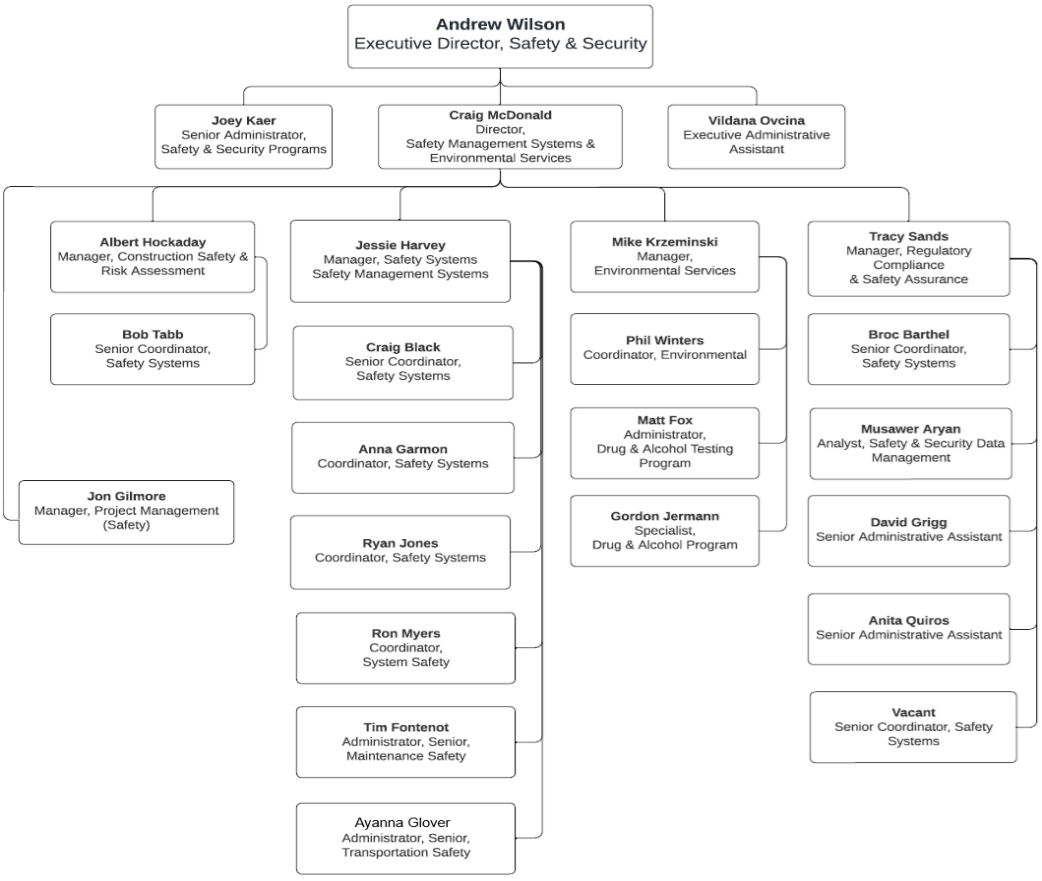


Figure 6: Safety & Environmental Services Departments



3.4 Delegation of SMS Authority & Accountability

TriMet's BOD has delegated the authority and accountability for operations to the GM.

The GM, in turn, has delegated responsibility and authority to the following:

- COO to act as the AE over SMS and carry out our *ASP*; and,
- The Executive Director of Safety & Security will act as the CSO under SMS and manage day-to-day safety oversight for all operating systems.

3.4.1 Duties & Responsibilities of Our Leaders, Key Staff, & Personnel

The responsibilities and accountabilities at each organizational level are outlined as follows:

The Board of Directors is comprised of seven members appointed by the Governor of Oregon. The BOD sets TriMet's policy, enacts legislation (taxing and policy ordinances), and reviews specific contracts. Members are volunteers and live in the geographical districts they represent. The term of office is four years, and service is restricted to a maximum of two terms, but members serve at the pleasure of the Governor. The BOD is responsible for adopting TriMet's *ASP* by resolution annually.

The General Manager is the Chief Executive Officer with full authority to conduct the administration and operation of TriMet. The GM:

- Sets and leads our strategic direction and collaborates closely with the executive team to operationalize that strategy; and,
- Ensures a commitment to safety through effective leadership, role modeling, and implementing practices that demonstrate safety is the highest core value in all aspects of TriMet operations.
- Has delegated the authority and responsibility of Accountable Executive to our Chief Operating Officer.

The Chief Operating Officer (COO) is the Accountable Executive (AE) for our SMS. Our AE may delegate certain responsibilities but retains ultimate accountability for our agency's safety performance. Additionally, as AE, our COO is required to be appropriately trained in the concepts and structure of SMS, has ultimate responsibility for the implementation and maintenance of our SMS activities and performance, our Asset Management Plan, and:

- Has control or direction over our human and capital resources as needed to develop and maintain our ASP; Ensures SMS is resourced and effectively implemented across our transit operations; mitigating poor safety performance; and ensuring action is taken, as necessary;
- Communicate with the GM and CSO about our safety goals and objectives, remain informed about our safety performance and any extraordinary safety matters that may have a significant impact, and ensure action is taken to address substandard safety management efforts; and
- Approves updates to the ASP by signature.

The Chief Safety Officer is the Executive Director of Safety & Security and oversees safety strategies and effective implementation at TriMet. The CSO is required to be appropriately trained for the position, does not serve in other operational or maintenance capacities and ensures:

- Development and implementation of SMS processes, tools and resources;
- Delivery of SMS training at all levels within TriMet;
- A job hazard analysis (JHA) is performed for medium to high-risk tasks;
- Identified safety risks are reviewed and prioritized using established Risk Matrices;
- Safety risk data is collected, managed, and analyzed through risk management processes;
- Executive directors are informed of safety risks rated above TriMet risk tolerance; and,
- The AE is informed of unacceptable risks that may require additional resources to reduce the risk to as low as reasonably practicable.

The following represent TriMet's Leadership and executive management teams who have the authorities and responsibilities for day-to-day implementation and operations of TriMet's SMS within their respective functional areas.

Executive Directors uphold and advance safety policies, develop safety performance objectives, and hold directors and managers accountable for safety performance within their respective divisions. They are required to be appropriately trained in the concepts and structure of SMS.

The following two organizational levels are TriMet's Key Staff who support developing, implementing, and operating our SMS.

Directors & Managers are designated Key Staff who are responsible for ensuring SMS is implemented and safety performance targets are achieved within their functional areas, including identifying and implementing countermeasures to control hazards, risks, and operational conditions negatively affecting TriMet's safety performance. They must be appropriately trained in the concepts and structure of SMS:

- Identification of risk associated with organizational failures, including policies, procedures, training, and implementation and compliance of SMS processes;
- Providing direction and additional resources to manage, monitor, and control safety risks.
- Reviewing hazard analysis submitted by assistant managers;
- Conducting periodic "Open Safety Risk" meetings to address:
    - Supporting documentation and collection of data;
    - Hazard analysis findings; and,
    - Progress and effectiveness of corrective actions.

Assistant Managers must be trained in the concepts and structure of SMS, and ensure the following:

- The date-to-day safety performance of personnel and equipment under their supervision;
- Promote and integrate SMS within their respective functional areas;
- Implementing and maintaining control measures;
- Completing the Hazard Analysis Worksheet (HW) for hazards that are identified in their functional area, including but not limited to equipment and workplace conditions;
- Populating TriMet's log of identified hazards; and,
- Submitting HWs to their managers and SAF for review and input.

If a hazard rating is within our defined "tolerable" level, assistant managers will reinforce or implement corrective action within their sphere of authority and aligned with their respective department's capabilities, including:

- Investigating additional feasible corrective measures to reduce the risk; and,
- Engaging frontline staff to solicit input about hazards and recommendations for improvement.

If additional corrective actions are outside the authority of the assistant manager or cannot be accomplished with department capabilities, they may engage, as needed and in the following order:

- Peer assistant managers to determine if the hazard is systemic;
- Next level of management for collaboration and decision making; and,
- SAF for professional technical consultation.

Personnel are required to abide by the standards, procedures, or requirements in the *ASP* and must:

- Perform work safely and follow procedures and rules;
- Report hazards, circumstances, or conditions that may impact safety performance; and,
- Report mishaps to their respective management teams.

Employees may invoke TriMet's Good Faith Challenge process if they believe they are being asked to perform unsafe acts or work in unsafe conditions without appropriate preparation or controls.

Employees may and are encouraged to also report hazards or safety concerns to their respective WSC or through the Request for Safety Assessment (RSA) process in support of our SMS, and participate in opportunities to advance our agency's safety efforts, such as serving on WSCs or safety-oriented continual improvement teams. We support these activities by ensuring members of such groups are given time during their workday to participate in their respective committees' activities and provided with the resources necessary to accomplish their assignments.

To facilitate access to and communication with WSCs, SAF maintains a TriNet webpage of all safety and safety-related committees (referred hereafter collectively as Committees, unless otherwise specified), including their charters. Copies of the WSCs' most recent published meeting minutes are posted on the webpage, along with a copy of the *Workplace Safety Committee Program* (*WSCP*), member training information, and other tools and resources.

Any non-member employee is welcome to attend and observe a WSC meeting provided they have obtained their management team's written consent or use paid time off. Employees need not obtain their management team's permission to attend while off-duty. Non-member employees may not disrupt a committee, team, or task force's meetings or be required to leave the meeting.

3.4.2 Safety Accountabilities & Responsibilities Matrix

Table 2 below depicts TriMet's Responsible, Accountable, Consulted, and Informed Matrix (RACI), which describes the participation, by selected role, for completing tasks or other deliverables of a project or business process. RACI is derived from four key responsibilities typically used on projects:

R—Responsible - Those who perform work to complete the task. At least one role has a participation type of responsibility. Others may be delegated to assist in the work as needed.

A – Accountable - The person accountable for completing the deliverable or task. This person ensures the deliverable's requisites are met and delegates work to others, as applicable. Accountability cannot be shared; therefore, only one person may be specified in this role for each deliverable.

C – Consulted - This role is for subject matter experts (SMEs) with expertise and experience in their respective fields. SMEs are active participants who must be consulted as early in decision-making, provided access to all relevant materials, and kept informed. The role can be assigned to multiple people, as needed.

I – Informed - Those who are kept updated on the progress and completion of the deliverables.

Table 1: Responsible, Accountable, Consulted, & Informed Matrix

Safety Tasks & Activities	General Manager	Chief Operations Officer, & AE	Exec. Dir., Safety & Sec. & CSO	Exec. Dir., Transportation	Exec. Dir., Maintenance	Exec. Dir., Transit Sys. Asset Sup.	Exec. Dir., Eng. & Construction	Executive Director, Legal Services	Exec. Dir., HR & Labor Relations	Exec. Dir., Information Technology	Executive Director, Finance	Dir. Facilities Management	Dir. Contracts & Procurement	Dir. of Bus & Rail Transportation	Dir. Safety Syst. & Envir. Services	Dir. of Bus & Rail Maintenance	Dir. Maintenance of Way	Infra. Invest. & Jobs Act Safety Comm.	Security Continual Improvement Team
Goals & objectives	A	R	R	C	C	R	C	C	C	C	C	C	C	C	C	C	C	R	R
ASP control & update	I	A	R	C	C	C	C	C	C	C	C	C	C	C	R	C	C	R	C
Hazard Mgmt Process	I	C	A	R	R	R	R	-	-	-	-	R	R	R	R	R	R	I	I
System Modifications	A	C	C	R	R	R	R	C	-	R	-	R	I	R	R	R	R	I	I
Safety Certification	I	C	A	R	R	C	R	I	-	-	-	R	-	-	R	-	R	I	I
Safety Data & Acquisition	I	A	R	R	R	R	-	-	-	R	-	R	-	R	R	R	R	I	I
Acc, Notice, Invest., & Rptg	I	A	R	R	R	R	R	C	-	-	-	R	-	R	I	R	R	I	I
Emergency Mgmt	I	A	R	C	C	C	C	C	-	C	-	C	-	C	I	C	C	C	C
Internal Safety Reviews	I	A	R	I	I	I	I	I	-	I	-	C	C	C	R	C	C	I	I
Rules Compliance	I	A	C	R	R	R	R	-	R	-	-	R	-	R	R	R	R	C	C
Facilities & Equip. Inspect.	I	A	R	R	R	C	-	-	-	-	-	R	-	R	C	R	R	C	C
Competency Mgmt Syst.	I	A	C	I	I	I	-	-	C	-	-	-	-	R	C	R	R	C	C
Training & Certifications	I	A	R	R	R	C	-	-	C	-	-	R	-	R	C	R	R	I	I
Configuration Mgmt	I	C	C	R	R	A	R	-	-	C	-	R	-	R	C	R	R	I	I
Local, State, & Fed. Req.s	I	A	C	R	R	R	R	C	R	I	R	R	I	R	C	R	R	I	I
Hazardous Materials	I	R	A	-	R	I	I	-	-	-	-	R	I	-	R	R	R	-	-
D & A Program	I	A	R	R	R	R	-	C	R	-	-	R	R	R	R	R	R	-	-
Procurement	I	A	C	R	R	R	R	-	-	-	R	R	R	R	C	R	R	-	-
Hours of Service	I	A	C	R	R	-	-	C	I	-	-	-	I	R	I	R	R	C	C
Budgeting & fund allocation for safety deficiencies	A	R	R	C	C	C	C	I	I	I	R	C	C	C	C	C	C	R	R
Control of electronic systems	A	C	C	C	C	C	C	C	C	R	C	I	I	I	I	I	I	-	-

3.5 Key TriMet Departments' Safety & Security Roles & Responsibilities

3.5.1 Accessible Transportation Program

We provide paratransit services in accordance with the Americans with Disabilities Act (ADA). Demand-responsive dedicated service is provided to those who are eligible, via a combination of dedicated cutaway buses and ford transit vans, all equipped with mobility device lifts and securements. We contract for additional capacity from Uber, UZURV, Big Star transit, and Broadway Cab in a combination of sedans and ramp-equipped minivans.

Located at 2800 NW Nela Street, Portland, Oregon, TriMet Lift Paratransit Operations Contact Center is the administrative, contact center and maintenance facility for all Paratransit services. The building includes District management offices, a dispatch office, contact center (reservations, customer service and scheduling), break room, facility maintenance areas, equipment maintenance areas, and vehicle storage. Two additional service garages are located at 3618 SE 92nd Avenue and 2055 SW Merlo Court.

Fleets that operate out of the district include the 9800, 9900, 8700 series Chevy Eldorado Advantage cutaway buses, 8800, 8900 series Ford Transit Passenger Wagons, and 8100 and 8200 Ford Eldorado Cutaway buses. We use renewable diesel fuel in the 9800, 9900, 8700, 8800, 8900 Vehicles, and unleaded gasoline in the 8100 and 8200 vehicles. Vehicles are stored, wet-hose fueled, and operated out of the two service garages listed above.

3.5.2 Engineering & Construction

Our E&C Division establishes, maintains, and updates criteria for the design of TriMet's capital projects for LRT, station, bus, and other facilities. Additionally, E&C prepares the drafting standards, directive or sample drawings, management procedures to standardize and guide the design activities, and preparation of contract documents. Together with these design criteria, E&C designs and builds critical safety and security-related requirements into new, renovated, or extended lines, buildings, stations, track rehabilitation projects, and any future bus, rail, station, or facility upgrades. These design criteria usually include primary planning considerations specific to the project based on industry standards, codes, and guidelines, Crime Prevention through Environmental Design concepts, ADA requirements, and safety and security best practices commonly utilized at other transit agencies. Additionally, some criteria are derived from other station reconstruction projects, lessons learned, and safety or security recommendations derived from Preliminary Hazard Assessment (PHA) results and recorded security-related issues within our system that affect design.

E&C also:

- Maintains and updates all other manuals that are essential to the core mission of implementing projects;
- Review contract documents to ensure the inclusion of safety and security criteria;
- Establishes procedures for verification of system and construction safety requirements in contracts;
- Establishes construction processes and monitors procedures for compliance with safety requirements;
- Complies with internal safety plans and committee reviews and approvals for safety-critical items;
- Conducts construction observations and safety walks;
- Ensures safety-critical elements are completed and approved before turnover and operations; and,
- Provide engineering and technical expertise for safety-related items or safety response callouts.

3.5.3 Environmental Services

Our Environmental Services Department ensures that TriMet maintains compliance with all applicable federal, state, and local environmental regulations governing storm water, wastewater, chemical management, hazardous waste, underground storage tanks, spill response, air emissions, and environmental cleanup. Environmental Services conducts inspections at all TriMet facilities to ensure that the processes and procedures for chemical storage, use, and disposal are properly implemented. By nature, this role supports, promotes, and ensures a culture of safety at TriMet through the reduction of workplace chemical exposures and hazards. Environmental Services also works with the Safety Department (SAF) to review and approve the use of all chemicals in our Safety Data Sheets (SDS) database, with an emphasis on employee and environmental health and safety in mind.

3.5.4 Facilities Management

The Facilities Management Department is responsible for managing and maintaining our facilities and assets; planning, acquiring, and allocating facility resources; and for providing safe, healthy, productive work environments including, but not limited to:

- Building and grounds maintenance functions District-wide, such as maintenance and custodial functions for buildings, building systems, stations and transit centers, and landscaping;
- Manages the functionality and testing of all fire life safety systems and extinguishers District-wide; and,
- Manages the crane and hoist inspections on all District properties.

3.5.5 Fare & Communications Equipment Maintenance

Fare Communication & Equipment (FCE) is responsible for maintaining equipment on Max and WES platforms and other integral devices. This group works to perform preventive maintenance inspections, repairs, troubleshooting, and servicing on passenger platform equipment, vehicle-mounted equipment, and equipment installed in remote locations, as required by manufacturers' maintenance and service manuals and TriMet Standards and Procedures. This is highly skilled electronic maintenance work requiring a thorough knowledge of electronics theory and practices, computer hardware, software and networks, fiber optics, wired and wireless communications, and ticket vending equipment. This group prioritizes commitment to safety through consistent and professional behaviors, demonstrating that safety is a fundamental value that guides all aspects of our work.

3.5.6 Field Operations

The Field Operations supervisors are responsible for proficiency checks, field supervision, rules compliance assessments, assistance in bus and rail collision investigations, and schedule adherence. They monitor and recommend service adjustments, provide security, and street-side customer service.

Field supervisors diligently perform comprehensive system hazard assessments, including but not limited to construction progress in assigned districts, road hazards, non-TriMet-related safety events, and potential unplanned disruptions to service.

When necessary, the Operations Command Center (OCC) can dispatch field supervisors to specific locations to assist operators in various circumstances. This includes, but is not limited to, equipment breakdowns, fitness for duty checks, safety events, or passenger issues.

3.5.7 Information Technology

The Information Technology Department (IT) ensures the safety of staff, data, and IT infrastructure. IT's objectives include ensuring employee safety, protecting infrastructure and data, and complying with safety regulations. IT is responsible for physical safety policies such as access controls providing a secure entry into IT server and communication areas with ID verification, and environmental control policies including maintaining temperature, humidity, fire suppression, and power in server rooms. IT's cybersecurity policies encompass data protection (encrypt data, perform regular backups, and manage access controls), network security (using firewalls, intrusion detection systems, intrusion prevention systems, and secure virtual private networks), and incident response for reporting, containing, and recovering from outages and cybersecurity threats. IT provides training for Cybersecurity Awareness to ensure employees understand how to browse the internet safely, manage passwords effectively, and avoid threats like phishing or vishing. IT conducts regular physical and cybersecurity risk assessments and implements mitigation strategies like physical barriers and cybersecurity measures. IT conducts incident reporting and investigations. Personnel reports incidents immediately document the details, and investigate to identify causes and implement mitigations.

3.5.8 Intelligent Transportation Systems

The intelligent transportation systems group reports to the chief information officer within the Information Technology (IT) Division of TriMet. IT is responsible for maintaining, supporting, and enhancing mission-critical systems. These include; bus dispatch, rail control, land mobile radio (LMR), closed circuit television, electronic fare, intrusion detection systems, passenger information, transit signal priority (TSP), and paratransit dispatch. Some of these systems have a direct impact on the safety of our passengers and staff.

- Land mobile radio: Provides reliable safe communication to all bus, train, paratransit operators, Maintenance of Way (MOW) staff, field operations, security staff, customer service staff, and vehicle maintenance personnel. All portable radios in use at TriMet possess an emergency call feature;
- Bi-directional radio amplifier (BDA): BDA’s deployed throughout the Robertson Tunnel provide radio communication for light rail trains, and portable radios in the Tunnel. In addition to TriMet’s tunnel radio service, the BDA system provides regional emergency agency radio signals in the Tunnel;
- Bus dispatch: in addition to radio communication, the bus dispatch system allows for text messaging and data communication to all fixed route buses. A silent alarm feature is provided as part of the system;

- Para transit dispatch: similar to fixed route bus dispatch;
- Avtec radio console: The Avtec radio console system allows the operation command center to send system-wide, fleet-wide, route-specific, or vehicle-specific voice communication. This allows for system-wide or targeted emergency voice communication;
- CCTV system provides "passenger awareness" monitors in fixed route buses. A monitor in the bus provides a CCTV feed showing that the interior of the bus is being recorded by a network video recording. This allows all passengers to know that they are being monitored;
    - All fixed route buses have internal and external CCTV recording while the buses are in service;
    - All rail platforms have CCTV cameras for monitoring and recording activity;
- Intrusion detection systems: Intrusion detection systems have been implemented in key locations at TriMet facilities, most notably the entrance to the Robertson Tunnel; and,
- Lenel physical access control: This system provides secure role-based access to TriMet's facilities. Access is provided through employee badges.

Other intelligent transportation systems group has an indirect but important safety role

- Rail control system: The rail control system provides real-time situational awareness to OCC of all light rail train locations and schedules. The light rail signal system managed by the Engineering and Construction Division provides the direct life safety role for the light rail system;
- Passenger information systems: IT provides and maintains an alert system for operators to make and disseminate messages to the public at rail platforms and bus stops, and TriMet's website; and,
- Exacom call recording: IT maintains and supports the Exacom call recording system. This system records all radio and telephone conversations in the OCC.

3.5.9 Labor Relations & Human Resources

Labor Relations and Human Resources (LRHR) negotiates labor contracts that identify management rights for assigning work, establishes work rules of acceptable performance standards, and provides a performance management system for recognizing, coaching, and formally disciplining employees. LRHR establishes a process for developing management strategies for labor contract changes that address bus and rail operations and employee safety issues and supports managers in effectively enforcing safety rules and procedures. LRHR provides assistance with conflict resolution techniques to resolve labor/management conflicts in a way that does not disrupt safe operating procedures. LRHR maintains our employee assistance program, professional development, and education programs.

3.5.10 Legal Services Division

The Legal Division is responsible for providing professional, competent, responsive, and cost-effective legal assistance to our BOD, executives, and staff, to resolve legal, project, and business matters facing the Agency. The Division's attorneys and staff provide internal policy advice and counsel to management and District divisions to respond to legal issues and guide the District. This includes reviewing, investigating, defending, and resolving legal and administrative complaints lodged against TriMet.

In the course of performing these functions the Legal Division supports the *ASP* by engaging in risk management (identifying hazards and advising on their reduction or elimination) and providing safety assurance (auditing programs or processes). Legal Division attorneys and staff provide the annual review and explanation of the *ASP* for the BOD and prepare the resolution that adopts the annually revised document.

In addition, Legal Division attorneys and staff:

- Provide review and advice about safety event reports made to ODOT of our LRT system;
- Review and respond to complaints from the Bureau of Labor & Industries and OR-OSHA;
- Provide legal support to the TCRC and project-related safety & security committees concerning transit projects and procedures and safety-related actions;
- Provide advice on the development of internal SOPs;

- Provide legal support to the Security Continual Improvement Team (SCIT) concerning safety and security issues arising on the transit system;
- Implement requirements concerning the development, maintenance, access, safeguarding, and disposition of Agency records, and the preservation of information that may relate to pending or anticipated legal actions involving the District; and,
- Maintain and update the TriMet Code and Administrative Rules.

3.5.11 Maintenance, Bus

- Defines support equipment, personnel, and procedures for responding to emergencies; and abnormal or failure recovery conditions;
- Identifies unsafe practices and procedures throughout the system, and conducts safety walks through assigned facilities with established checklists;
- Establishes disciplinary actions for unsafe acts, practices, or violations, as defined by the labor contract;
- Defines safety critical elements and establishes maintenance priorities for them;
- Tracks state of good repair of safety equipment and replaces as needed;
- Coordinates safety-training requirements with bus maintenance training (BMT) for critical maintenance activities including but not limited to the following:
    - BMT under the Transit System & Asset Support (TSAS) Division, and management help establish training requirements related to the maintenance of buses;
    - Participate in drills and simulations to validate procedures and training;
    - Develop and verify that procedures are in place for bus maintenance and approved by TCRC;
- Ensure that safety performance is a part of non-union employee's performance evaluation;
- Safety meetings are conducted and documented consistently on an assigned schedule; and,
- Ensure adequate tracking of any hazardous chemicals used in the process of performing work.

3.5.12 Maintenance of Way

MOW manages the overhead catenary (electrical) system, signals, substations, and track for our light rail system. MOW is responsible for managing and maintaining TriMet's assets, planning, maintaining equipment, and allocating resources to maintain a state of good repair. Tasks include but are not limited to:

- Defining support equipment, personnel, and procedures for responding to emergencies; and abnormal or failure recovery conditions;
- Taking steps to identify unsafe practices and procedures throughout the systems;
- Performing safety walks through assigned facilities with established checklists;
- Establishing disciplinary actions for unsafe acts, practices, or rule violations, as defined by the labor contract;
- Defining safety critical elements and establishes maintenance priorities for them;
- Tracking state of good repair of safety equipment and replaces as needed;
- Coordinating safety-training requirements with MOW Maintenance Training for critical maintenance activities including but not limited to the following:
    - MOW maintenance training department under TSAS, and management help establish training requirements related to the maintenance of buses;
    - Participate in drills and simulations to validate procedures and training;
    - Develop and verify that maintenance procedures are in place for MOW and approved by TCRC;
- Ensuring that safety performance is a part of non-union employee's performance evaluation;
- Conducting safety meetings and documented consistently on an assigned schedule; and,
- Ensuring adequate tracking of any hazardous chemicals used in the process of performing work.

3.5.13 Maintenance, Rail Equipment

Rail Equipment Maintenance (REM) ensures all maintenance personnel are trained to safely perform the duties assigned to them both in the shop and in the field. The support equipment and duties to respond to emergencies are laid out in the Incident Response Manual. Both Ruby Junction and Elmonica Yards have response vehicles equipped to handle abnormal and failure recovery conditions. Tasks include:

- Defining support equipment, personnel, and procedures for responding to emergencies; and abnormal or failure recovery conditions;
- Taking steps to identify unsafe practices and procedures throughout the systems;
- Performing safety walks through assigned facilities with established checklists;
- Establishing disciplinary actions for unsafe acts, practices, or rule violations, as defined by the Union contract;
- Defining safety critical elements and establishes maintenance priorities for them;
- Tracking state of good repair of safety equipment and replaces as needed;
- Coordinating safety-training requirements with REM Maintenance Training for critical maintenance activities including but not limited to the following:
    - REM maintenance training department under TSAS, and management help establish training requirements related to the maintenance of buses;
    - Participate in drills and simulations to validate procedures and training;
    - Develop and verify that maintenance procedures are in place for REM and approved by TCRC;
- Ensuring that safety performance is a part of non-union employee's performance evaluation;
- Conducting safety meetings and documented consistently on an assigned schedule; and,
- Ensuring adequate tracking of any hazardous chemicals used in the process of performing work.

3.5.14 Operations Command Center

Real-Time Monitoring & Incident Management:

- OCC continuously monitors transit service operations using advanced supervisory control and data acquisition systems, CCTV, and communication networks;
- OCC promptly detects, assesses, and manages any incidents or emergencies, ensuring swift response and coordination with emergency services; and, controllers and dispatchers address operational issues, restore service, and minimize disruptions.

Safety Assurance & Compliance:

- OCC ensures that transit service operations comply with safety protocols and regulatory requirements; and,
- OCC oversees the adherence to safety procedures during special events, service interruptions, and emergencies, acting as an integral part of the incident command structure.

Communication & Coordination:

- OCC acts as the central communication hub, disseminating critical information to operators, field supervisors, emergency responders, and relevant stakeholders; and, coordinates with various departments to ensure timely communication and efficient management of resources during incidents.

Training & Development:

- The OCC provides on-the-job training (OJT) for new Controllers and Dispatchers, ensuring they are well-equipped to handle real-time transit service operations and emergency situations; and,
- It promotes a culture of continuous improvement by offering coaching, counseling, and guidance to staff, aiding their professional growth and enhancing overall operational safety.

Performance Monitoring & Evaluation:

- The OCC evaluates individual and departmental performance against safety and operational standards, providing feedback and recognizing achievements; and identifies areas for improvement and implements corrective actions to enhance the safety and efficiency of transit service operations.

Customer Service:

- OCC prioritizes internal customer service, addressing concerns and ensuring a positive staff experience;
- It remains sensitive to the needs of diverse populations, including the elderly, persons with disabilities, and other vulnerable groups, ensuring their safety.

3.5.15 Procurement, Supply Chain Management, & Finance

The Procurement & Supply Chain Management Department ensures that materials, equipment, construction, and services are obtained promptly, efficiently, and economically while adhering to principles of good administrative practices and sound business judgment within the parameters of state and federal regulatory requirements. All purchases shall be conducted to provide maximum open and free competition and not unduly restrict or eliminate competition.

The Department includes consultation with the Safety and Environmental Services Departments and, in some cases approval for requests for proposals that include the purchases of chemicals and rolling stock and shall forward SDSs for chemicals not previously approved to the SAF for review and approval before award.

Purchasing goods and services for TriMet is a cooperative effort. All staff involved in the process shall employ sound judgment and appropriate standards of ethics and fairness in carrying out their responsibilities and tasks. The Purchasing and Contracts Teams prepare each contract, ensuring all applicable safety documentation is included, as provided by the SAF and Project Managers. Further, the Department ensures that all contracts include federal and state regulatory compliance provisions.

3.5.16 Risk Management Department

Risk Management is responsible for managing and directing the operations of the Risk Management Department for the Agency. This position develops and implements the Agency's risk management strategy; initiates insurance and risk management programs; ensures the Agency's lines of business have established risk and insurance plans to manage all assets and operations; develops risk transfer and risk financing mechanisms, and insurance program structures; and provides safety and loss control, claims management, contract and agreement reviews, and litigation support; and manages the risk management information system (RMIS).

3.5.17 Safety Department

SAF is responsible for providing District-wide oversight and professional technical expertise of safety and health policies, programs, practices, and processes and developing and implementing health and safety programs to protect TriMet's employees, customers, and the general public who interface with our transit system, from safety hazards. SAF's function focuses primarily on construction, facilities, maintenance, operating procedures, and avoiding hazards through internal oversight of regulatory compliance. SAF is comprised of four teams: Construction Safety, SRM & Promotion, Safety Assurance, and Safety Project Management.

Activities include but are not limited to:

- Administering and implementing District-wide safety programs and processes (e.g., *ASP*, WSCs, SDSs Sheets, Industrial Hygiene, and processes for identifying, recording, assessing, and mitigating hazards);
- Advancing our SMS and leading efforts to grow a culture of safety;
- Interfacing with local, state, and federal safety regulatory agencies, monitoring compliance with their rules and regulations, and conducting compliance assessments;
- Developing or assisting with the development of safety programs and safety design criteria for incorporation into system design;
- Conducting or initiating contracted services to conduct hazard assessments and hazard risk ranking;

- Administering the employee hazard reporting system (Request for Safety Assessment);
- Administering TriMet's regulatory reporting for safety events to FRA and FTA\ODOT;
- Leading high-severity safety event investigations, including derailments; collisions resulting in substantial damage, fatalities, or substantial damage; identified hazards; and serious employee injuries;
- Performing Internal Safety Reviews (ISRs);
- Promoting safe vehicle operation and prevention of safety events;
- Developing or assisting with the development of corrective action plans (CAPs) under *OAR 741-060-0020(6)*) to correct identified deficiencies;
- Developing or updating safety rules/ procedures and emergency preparedness plans in cooperation with other departments and outside agencies as appropriate;
- Evaluating new designs and proposed system modifications from a safety perspective; and,
- Initiates and administers the Safety and Security Certification Plan and maintains system safety records following the Records Retention Schedule.

3.5.18 Security & Transit Police

Security Department's Roles & Responsibilities include:

- Establishing, maintaining, and implementing the System Security Plan and Emergency Operations Plan;
- Establishing reporting systems for security issues;
- Responsibility for access control and security through crime prevention strategies;
- TriMet Code and fare enforcement;
- Deploying security resources to address issues throughout the system;
- In concert with affected departments, establishes, maintains, and practices emergency procedures for safety events, intentional incidents, and acts of nature that impact TriMet's safety and security; and,
- Detecting and deterring terrorism-related activities.

Transit Police tasks include:

- Maintaining order by responding to emergency calls for service on and around the transit system;
- Enforcement of criminal statutes and TriMet Code by issuing citations, making arrests, and conducting criminal investigations of transit-related crime;
- Reporting of crime data and statistics;
- Detecting and deterring terrorism and related activities on and around public transit;
- Performing support and protection for special events and dignitary protection; and,
- Traffic control.

3.5.19 Service Delivery Department

The service delivery department is responsible for developing and adjusting bus and rail schedules, special event coordination, MAX track access permits, operator assignments, and workforce planning. Service delivery consults with other departments such as service planning, transportation operations, and various team members in the Maintenance Division on items such as service planning, service frequency, bus stop locations, and long-term planning strategies. When scheduling bus and rail services, developing special services, and in creating workforce assignments safety is the department's top priority. Employees in service planning are expected to identify, report, and mitigate safety hazards.

3.5.20 Service Planning Department

The service planning department is responsible for developing and adjusting bus routes, service frequencies, service spans, bus stop and layover locations, and stop amenities. Service planning also consults on MAX light rail expansion and develops plans for MAX light rail service levels (i.e., service frequency and span). Safety is the department's highest priority when planning new or adjusted bus and MAX service and deploying or adjusting bus stops and amenities. All employees in service planning are expected to identify, report, and

mitigate safety hazards. In addition, the senior director of planning has responsibilities for producing the business plan in tight coordination with Vision 2030 efforts, managing the climate action plan, and coordinating sustainability efforts. Safety is prominently identified in the business plan values and is a crosscutting priority for Vision 2030.

3.5.21 Transit Systems & Maintenance Support

TAMS, under the Transit Systems & Asset Support Division, maintains vehicle and system configuration in alignment with safety certifications, manufacturer requirements, and TriMet system requirements. The department will also manage the implementation of the new CCMP for TriMet revenue vehicles, and the rail wayside system. Other responsibilities are Failure Analysis Reports where team members analyze serious failures to determine root cause, and recommend possible paths to prevent future failures; scheduled overhauls and maintenance support; and, process improvement.

3.5.22 Transportation Operations

Transportation Operations safety and security roles and responsibilities include but are not limited to:

- Developing and ensuring adherence to SOPs for Transportation Operations;
- Helping investigation of unsafe practices, procedures, and safety events throughout the transit system;
- Help establish disciplinary actions for unsafe acts, practices and rule violations;
- Participates in drills and simulations to validate procedures and training;
- Establishes requisite tests and inspections; and,
- Ensures that safety performance is a part of employee evaluation and promote a positive safety culture.

3.5.23 Transit Training Department

The Transit Training Department, under the Transit Systems & Asset Support Division, is responsible for training all represented Maintenance and Transportation employees on how to safely operate and maintain the specific equipment they use to successfully do their jobs. This includes a comprehensive training experience for all relevant disciplines, ensuring awareness and understanding of TriMet's operating rules and safety expectations.

3.6 Safety Policies & Other Safety Documents

Policies, plans, programs, and procedures have been developed to guide safe operations at TriMet, not all of which are described in this document. A complete listing of the policies is provided on TriNet (our intranet site), including those covering rail workers on the railway, under the following departments' web pages:

Table 2: TriNet Safety & Safety-Related Documents

Department	Documents
Safety Department	Drug & Alcohol Program, Workplace Safety Committee Program,
	Safety Policies, Programs, & General Operating Procedures
Emergency Management Department	Emergency Preparedness Plan, Emergency Operations Plan,
	Continuity of Operations Plan, & Facility Emergency Plans by Loc.
Design & Construction Division	Manuals, Forms, & Training Bulletins & Resources, & The
	Construction Safety Manual & Forms, & TriMet Design Criteria..
Human Resources & Labor Relations	*HR Manual, § 5: Safety & Security*
Maintenance Operations	*Bus Maintenance:* Bus Maintenance Safety
	Facilities Management: General Policies & SOPs
	Maintenance of Way: Competency Management System
	Fall Safety Equipment Manual, On-Track Safety Manual, &
	Safety Shorts bulletins, Railroaders' Guide to Healthy Sleep.
	Rail Equipment: Maintenance Incident Manual
Transportation Operations	Safety & Safety-related Checklists, Rail Rule Book,
	General & Standard Operating Procedures, On Track Safety,
	Rule Violations Policy, & Competency Management Program

3.7 TriMet Safety & Security-Related Committees

TriMet maintains various safety- and security-related committees that may be composed by function or location, depending on scope and focus. The charters of these committees are posted on the TriNet webpage for Safety Committees (unless otherwise noted), along with their officers, contact information, most recent published meeting minutes, and tools and resources to support committee activities. Most committees meet during regular business hours, but some are held during the affected members' regular work hours, which can include swing and night shifts. All committee members are compensated at their regular pay to attend meetings and perform member assignments.

Our committees include:

- TCRC;
- IJASC;
- WSCs;
- Security Continual Improvement Team;
- Critical Incident Stress Management Committee;
- Vehicle Accident Review & Appeal Boards (which operate under a policy);
- Rail Operations Review Committee; and,
- Fire & Life Safety & Security Committee (convened and operated by project, as needed).

3.7.1 Transit Change & Review Committee

We established TCRC to formalize and document our process for managing change safely. TCRC is tasked with reviewing or approving changes that may impact safety or security performance.

TCRC is designed to:

- Evaluate the impact that changes may have on people, procedures, equipment, vehicles, and the environment of the system affected by the change;
- Consider findings and recommendations made of our systems;
- Be the approving committee for Hazard Risk Index (HRI) ratings of Level 3 in the HRI (see *ASP § 4.2.3*) after mitigations have been made at the local level;
- Review trends and monitor Key Performance Indicators for safety performance;
- Evaluate the effectiveness of departments' safety policies, programs, procedures, and activities through the review of safety data and source documents; and,
- Drive, if needed, departments' resolution of their respective safety issues, in partnership with SAF.

TCRC comprises voting members from each division in our agency and notifies members about operational, procedural, or mechanical changes within our system. Membership is predominantly comprised of executive directors, directors, and key senior managers.

The CSO serves as chairperson. The Director of SMS & Environmental Services, or designee, is the vice chairperson. A recorder performs administrative tasks, including generating and distributing meeting minutes. Members evaluate changes and must reach a consensus. Technical experts may attend committee meetings to clarify proposed changes. ODOT, as the designated SSOA, is an ex officio member.

More information about TCRC's scope, associated activities, membership, and communications is available in its charter, which can be found on TriNet.

3.7.2 Infrastructure Investment & Jobs Act Safety Committee

IIJASC was established in compliance with *§5329(d)(5)*. The committee is a joint labor-management process; membership consists of equal numbers of represented frontline employees and management. The committee is designated as Key Staff responsible for advancing our SMS through its business activities.

The Amalgamated Transit Union (ATU) selects four employee members who represent the plurality of our frontline workforce. Executive leadership, or designee, appoints four management members across the agency to support representation from administration and modes.

The IIJASC is responsible for:

- Approving revisions and updates to the *ASP*;
- Setting annual safety performance targets for the safety risk reduction *program §5329(d)(4)(A) and Part 673.15(a)&(b)*);
- Identifying and recommending, or assessing recommendations for, risk-based mitigations to reduce the likelihood and severity of consequences identified through our safety risk assessment processes;
- Following Oregon Health Authority guidance for identifying recommendations to minimize transmission of infectious disease in transit service operations; and,
- Monitoring transportation and maintenance operations to identify safety deficiencies or mitigations that may be ineffective, inappropriate, or weren't implemented as intended (continual improvement), including safety risk mitigations associated with any instance where we didn't meet an annual safety performance target in the safety risk reduction program.

While some IIJASC functions are similar to WSCs, it has other responsibilities; it's bound by different regulatory rules, and does not perform workplace hazard inspections. For details about how the committee operates, member recruitment, election and terms of service of officers, training, written documents (e.g., agendas, record of meeting minutes, and communications), meeting frequency and dates, engaging technical expertise and SMEs (including transit worker advisors), how the committee will carry out its responsibilities, and document retention process can be found in the *IIJASC Charter* (see also, *§5329(d)(5) and all subparagraphs there under*).

Recommendations for safety risk mitigations identified through the IIJASC are in its meeting minutes, periodic reports to TCRC, and submittals to the AE or BOD. IIJASC follows established agency processes for preparing and making submittals or presentations to the BOD with guidance from Legal Services.

See the IIJASC's charter for more information and details.

3.7.3 Security Continual Improvement Team

In 2015, TriMet instituted the Security Continual Improvement Team (SCIT) predominantly to support the application of SMS for the security of employees who work in the field. SCIT may also be asked to provide input about security at any TriMet facility. SCIT is designated as Key Staff responsible for advancing our SMS through its business activities, serving in part as a mechanism for compliance with *§5329(d)(1)(H)(ii)(III) & (1)(I)(ii)&(iii)* for identifying, developing, and submitting recommendations for mitigation of assaults on transit workers.

The committee is comprised of volunteer ATU-represented personnel, OCC, Field Operations, Legal Services, Risk Management, and Security. The SCIT is responsible for:

- Reviewing statistical information and events about assaults and other security issues;
- Researching, assessing, and recommending policies, procedures, infrastructure, and technology designed to reduce assaults on transit workers.

To ensure and maintain communication and advance regulatory compliance, SCIT reports its business products (e.g., hazard or risk assessments and recommendations) to the IIJASC. IIJASC is responsible for incorporating requisite information from SCIT to meet security-related obligations required under *USC § 5329(d).*

SCIT is responsible for reviewing ASP revisions, and giving input or making recommendations to IIJASC, however, IIJASC retains full responsibility for approving the ASP. See SCIT's charter for more information and details.

3.7.4 Workplace Safety Committees

According to *OAR 437-001-0765 Safety Committees & Safety Meetings*, we maintain WSCs organized by location or function. WSCs are a communication tool that brings management, employees, and SMEs together to identify, assess, and report hazards and safety concerns. WSCs are integral to our agency's efforts to provide and maintain a safe and healthful workplace. WSCs are subject to the *WSCP* (see the document for details), and the number of committees may expand or contract based on organizational structure or committee merges.

The WSCs work with their respective management teams to:

- Identify hazards or safety concerns for purposes of continual improvement;
- Assess options and make recommendations to management about risk-based mitigations or strategies to reduce, if not eliminate, hazard severity or probability; and,
- Assess mitigations or strategies that may be misaligned, ineffective, or poorly implemented and notify management.

At minimum, WSCs are responsible for performing the following activities:

- Conducting quarterly hazard inspections of the facilities in which they operate;
- Meeting monthly (except for months in which they conduct hazard inspections);
- Reviewing employee injury summaries and hazard log to assist with identifying trends and developing recommendations for mitigation; and,
- Reviewing safety programs or safety accountability systems, and developing and submitting recommendations for improvement to affected department management teams.

3.7.5 Critical Incident Stress Management Committee

Established on June 3, 2019, the Critical Incident Stress Management (CISM) committee was formed to provide employees with essential guidance and support following a critical incident in the workplace. CISM aims to ensure employees can navigate challenging circumstances with resilience and confidence and feel understood, guided, and empowered to overcome any emotional hurdles.

CISM meets monthly during regular business hours, but the chairperson, a membership quorum, or a management team if needed may hold special meetings. Membership is comprised of employee and management volunteers.

Membership responsibilities include:

- Adhering to and upholding TriMet Human Resources policies, SOPs, and CISM's directives;
- Participating in an on-call duty rotation for responding to employee traumatic event; and,
- Remain readily available and respond within a reasonable period when on active duty.

3.7.6 Vehicle Accident Review & Appeals Boards

TriMet supports activities that help identify opportunities for continual improvement, which is the foundation for forming these boards and serves as a mechanism for compliance with *Part 673.27(d)(1)* and *§5329(d)(5)(A)(iii)(III)*. The Vehicle Accident Review and Appeals Boards' purpose is to objectively determine whether an employee operating a vehicle during an event could have prevented or mitigated the resulting severity by using defensive driving strategies and techniques. The voting members of these boards include two revenue vehicle operators, two Transportation Operations Training supervisors, and one SAF staff who serves as the chairperson and, if needed, casts a tiebreaker vote.

We've installed two review boards, separated by mode, that follow guidelines published by the National Safety Council for determining preventability.

- Events involving over-the-road vehicles (e.g., buses, service trucks, and passenger vehicles) are subject to the Bus Review Board's review; and,

- Events involving vehicles that operate on the light rail system (e.g., trains and hi-rail vehicles) are subject to review by the Rail Review Board.

Members of the Review Boards' are not provided with the identities of the affected employees to minimize, if not eliminate, potential bias during the determination process. Employees who receive a preventable accident determination may elect to appeal the review board's decision to a separate corresponding appeals board.

Additionally, we've installed two appeals boards, which reflect the same division by mode and follow the same determination guidelines as the review boards. During appeals boards' meetings, the affected employees participate in the appeal to provide additional relevant materials supporting their knowledge and understanding of their respective events and answer any questions board members may have.

Employees who wish to appeal a determination made by an appeals board may request an independent third-party review. This is done to ensure these processes meet the intent of published guidelines on the prevention of safety events involving TriMet vehicles. The third-party reviewer's determination is final.

The Accident Review and Appeals Policy provides more information about the boards.

3.7.7 Rail Operations Review Committee

The Rail Operations Review (ROR) committee is a sub-committee of TCRC. The duties of the ROR are performed and administered by Transit Systems and Asset Support Division and is responsible for developing new rules and procedures and changes to existing operating practices. ROR ensures processes comply with federal, state, and local regulations. Its objectives include:

- Developing and maintaining the process for approval and implementation of changes to rail operating rules, SOPs, and similar documents;
- Reviewing proposed changes to rail operations rules for effects on other documents to ensure consistency and regulatory compliance;
- Developing and ensuring compliance with an established standard that governs the definitions, formats, and specific roles of these documents; and,
- Conducting regular and periodic comprehensive reviews of RDs, which resulted in the publication of an updated document that included the Rail Rule Book (RRB).

3.7.8 Fire Life Safety & Security Committee

The Fire Life Safety & Security Committee (FLSSC) is a liaison between the transit agency, fire jurisdictions, and emergency response agencies. While the FLSSC is not a standing committee, typically, the project sponsor will implement an FLSSC to support regular coordination among the local first responding agencies and TriMet projects depending on the project's complexity. The FLSSC is often responsible for:

- Reviewing standards, safety & security-related designs, and tests to verify compliance with the fire life safety code and regulations;
- Addresses preparedness issues, determining drill details and necessary (agency & external) involvement; and,
- Reviews fire life safety variances.

FLSSC's makeup is determined by project size and scope of work but normally comprises local and state fire and police jurisdictions, local emergency response agencies, general design consultants and construction contractors, transportation and maintenance operations, Safety & Security, E&C, and other transit management staff.

This committee is usually a subcommittee to TCRC or Safety & Security Certification Review Committee (SSCRC) and as TriMet's primary liaison to the above-mentioned external agencies; the manager, security and emergency management (or director, security & emergency management) is responsible for chairing and supporting projects that require an FLSSC and TriMet's emergency preparedness.

3.7.9 Safety & Security Certification Review Committee

TCRC is presently the primary committee overseeing the agency's Safety & Security Certification program. However, when activated, the SSCRC is the formal committee (or subcommittee) within TriMet that oversees the Safety & Security Certification program of projects and directs the resolution of identified safety and threat hazards. The SSCRC discusses ongoing safety and security concerns, reviews and approves certification activities, works with the project manager to identify and eliminate hazards, and resolves issues among the project team and with the agency's executive leadership.

The SSCRC is directly accountable to the transit agency's executive leadership and the main avenue for addressing significant safety and security risks on a project. Committee voting members comprise safety and senior management personnel (directors) or their designees, representing the major operational groups associated with project areas and activities. Additional members include project team members, Risk Management, Legal Services, and other internal and external stakeholders that may be invited to participate as needed. The safety manager responsible for the certification program or other senior safety management personnel typically chairs this committee.

In some TriMet documents, this committee may also be referred to as the Safety & Security Committee (SSC) or Safety & Security Certification Working Group (SSCWG). Whichever committee name is in use, the charter (which can be found on TriNet) provides more information about its scope, associated activities, membership, and communications.

4.0 SMS Component II – Safety Risk Management

SRM is a formalized, proactive approach for advancing our safety efforts. SRM provides the structural elements, guides, and development necessary to identify, report, rate, and track hazards through the completion of mitigations designed to eliminate or reduce them as low as reasonably practicable.

A foundational element of SMS is risk ownership, meaning each department owns the hazards associated with its operations and must actively identify and manage efforts to address them.

Hazard identification is a continual effort performed across operational areas. Evaluating hazards and incorporating mitigations reduce the overall risk to TriMet and improve our ability to provide quality service throughout our communities. SRM provides a framework to ensure that, once a change is made, it's tracked (including improvements made during its lifecycle). Control strategies depend on whether an identified hazard and its safety risk pertain to the operational, design, construction, or renovation phase of the TriMet system.

SRM doesn't mean the elimination of all safety risks. For example, a bus system cannot eliminate the safety risk involved with roadway intersections. However, using SRM, hazards may be brought to acceptable levels using various controls to achieve a level of safety low as reasonably practicable with our resources.

4.1 Hazard Identification & Reporting

The first step in the SRM process is identifying hazards within our system. We recognize that our staff are the most familiar with the details of their jobs and their work environments, which makes their input crucial to maintaining workplace safety. Safety concerns may include unsafe working conditions or practices, close calls, mishaps, hazards, and policies or procedures that aren't working as intended. We have established processes and methods to identify hazards and their possible consequences so they may be addressed before escalating into harmful events.

Non-punitive hazard reporting system: Our agency values and fosters a just safety culture where personnel are comfortable bringing safety concerns to management. To that end, we've established an online reporting system so staff may be confident their safety concerns or identified hazards are logged, assessed, and resolved.

The system supports routing issues based on accountability and responsibility of functional groups, and Risk Decision Level resulting from the Hazard Risk Index, to WSCs, department management teams, and District senior leadership for input, collecting and documenting responses, tracking and trending hazards, and providing written responses to the reporter. Management reprisal is prohibited for such reporting; however, our system has an option for anonymous reporting to reassure employees so they are comfortable participating in hazard identification.

In addition to the Employee Hazard Reporting System, personnel can report safety concerns directly to their management team, WSC representatives, the OCC, or SAF.

Obligatory hazard reporting: Employees may be obligated to report certain unsafe acts or conditions. Obligatory self-reporting through the OCC, or failure to self-report violations of safety policies or procedures (as identified through internal safety assurance processes or from customer complaints that are substantiated through investigation), may result in disciplinary action, which is not considered retaliation.

Behaviors that are excluded from non-punitive safety reporting protections include, but not limited to:

- Establishing a pattern of safety violations through such behaviors as inattention, complacency, negligence, or willful disregard;
- Unlawful actions that does or could place the employee, other persons, or property at risk of serious harm, or extensive or costly damages; and
- Modeling or encouraging other persons to disregard or willfully disregard safety rules, policies, processes, or procedures.

Examples of violations incurred from such behaviors include:

- Use of a personal electronic device while on duty and within a hazardous area, such as an equipment or revenue vehicle storage yard, within or close proximity to a trackway (except at such locations designed for general public access such as a station platform or paved sidewalk along a roadway), or while in close proximity to moving equipment or machinery.
- Possessing or consuming alcohol or drugs (including prescription or over-the-counter drugs) while on duty or within certain periods before going on duty; or
- Removing or disabling safety guards on equipment or machinery.

Overview of next steps once a hazard is reported: After a hazard is reported, the responsible department investigates, assesses the results, initiates appropriate mitigations, monitors effectiveness, and completes the associated corrective action or action item record. These steps are described in more detail in the following sections. SAF is a resource to the responsible department and reports hazards to ODOT that fall under SSO oversight.

TriMet uses the following sources for hazard identification and methods to support analyzing and assessing consequences and their potential mitigations.

Table 3: Sources for Identifying Hazards

Sources for Identifying Hazards		
• After Action Reports (e.g., drills)	• Maintenance Reports	• Operational Hazard Assessment
• Committee reviews & analysis	• Post Event Reports	• Preliminary Hazard Analysis
• Compliance programs	• Job Hazard Analysis	• Security Analysis or Threat & Vulnerability Assmt
• Customer or public feedback	• ODOT inspection reports	
• Employee observation	• Request for Safety Assessment	• Industry or government (e.g., NTSB)
• Inspection results	• Software Safety Analysis	• Failure Modes, Effects, & Criticality

4.1.1 Hazard Tracking

While tools exist to evaluate risk quantitatively, the risk assessment methodology is often based on a qualitative calculation of subjective judgments to determine the risk associated with each hazard. Actual or potential identified hazards are classified by severity and probability characteristics. These provide a qualitative measure of the most reasonably credible outcome that might result.

To ensure effective SRM, our agency maintains a log of identified hazards, with risk ranking for each hazard. All departments ensure that identified hazards are entered into the log. The hazard log captures a description, classification, risk rating, consequences, and emergency mitigations. Hazard resolution is tracked in our actions item log, ensures mitigation through completion, and is used to develop residual hazard ratings, standardized emergency actions, and short and long-term mitigation strategies.

4.2 Safety Risk Assessment

After identification, the next step is to determine the risk level associated with a hazard and ensure an adequate level of analysis and mitigation. This process defines what will be analyzed and who will do the analysis, examining the conditions under which it exists, and provides clarity for evaluating safety risk.

Department management teams may choose to address low-rated hazards directly or forward the issues to senior management; however, as the rating increases, they must observe the escalation process in the resulting risk decision as provided in the HRI's corresponding Risk Decision, see the respective charts in Tables 8 and 9.

4.2.1 Hazard Classification

TriMet categorizes identified hazards using FTA's guide, Sample Hazard Classification System (August 2019, ver. 01), which is incorporated into this document by reference. Table 5 provides an overview of classification types and subtypes, and the guide provides examples of each subtype.

Table 4: Hazard Classification System Types & Subtypes

Hazard Classification System		
Types	**Description of Types**	**Subtypes**
Environmental	The natural environment causes conditions that may result in environmental hazards, such as cold weather events. While transit agencies cannot control environmental hazards, they can mitigate their effects or adapt.	Natural
		Weather
Organizational	This type stems from shortcomings in an organization's processes that may impact safety performance. These don't usually generate direct cosequences but influence the conditions under which transit services are delivered. Unlike the other hazard types, which are normally resolved at the supervisor level, this type of hazard require executive management resources and authorities to resolve.	Resource
		Procedural
		Supervisory
		Training
Technical	These hazard types refer to the condition of equipment, facilities, and infrastructure needed to deliver transit service. The condition of an agency's capital assets is critical to the system's safety and performance. Technical hazards may also result from changes in the configuration of facilites or systems that have occurred over time, as well as changes in the operational environment.	Design
		Equipment
		Maintenance
		Operational

4.2.2 Risk Tolerability Decision-Making Process

Hazard categorization is often subjective; however, using historical data and employing appropriate analysis methods may derive an objective determination. Hazards and risks are typically rated in terms of their actual or potential adverse impact on people, infrastructure, or equipment, the operating system, our agency's reputation as a safe and reliable transit service provider, or a combination. Required communications and management activities correlate with the HRI and corresponding Risk Decisions. This process is foundational for developing a mitigation strategy. However, it warrants noting that not all identified hazards require documented mitigation strategies or formal hazard analysis. Many hazards can be resolved immediately at the frontline level under the

staff's responsibilities, capabilities, and authority. This is desirable, encouraged, and reinforces the concept that safety is everyone's responsibility.

4.2.3 Hazard Rating Systems & Risk Index

Our rating system determines the acceptability of assuming a hazard's risk, the necessity of implementing mitigation measures to eliminate or reduce the hazard to an acceptable level, and the level of escalation.

Rating involves assessing the hazard in terms of severity and probability and helps to describe its magnitude and priority. The United States Department of Defense *Standard Practice for System Safety, MIL-STD-882E*, establishes system safety guidelines for making such determinations. We have adapted the system for our use. The HRI value derived from assessments is a measure of the hazard's undesirability. Under the HRI, the lowest alphanumeric value (1A) represents the highest severity and probability, while the highest (5F) is the lowest.

Identified hazards must be eliminated or controlled so they don't continue to pose a danger. The controls may be done temporarily until a long-term mitigation can be implemented. Depending on its hazard rating, a multi-departmental team may be established to analyze and develop recommendations to improve or control a hazard. The team may include, as appropriate, system SMEs, front-line personnel (represented or unrepresented), assistant managers, SAF staff (as technical support), or senior management. For hazards associated with light-rail transportation and maintenance operations, ODOT participation is encouraged and welcomed.

The following matrices begin the initial steps for describing a hazard, determining the correlating HRI value, and culminating in a Risk Decision Level that defines resolution actions.

Table 5: Hazard Severity Rating System

Severity Level	Characteristics			
	People	Equipment, System, or Service	Financial (estimated loss)	Reputational
Catastrophe 1	• Several fatalities • Several life-threatening injuries • Numerous serious injuries	Total loss of equipment or system interruption requiring months to repair	$ 5,000,000 or more	• Ongoing media coverage • Irreparable reputational damage • Prolonged government • Duration weeks to months
Critical 2	• One fatality • One life-threatening injury • Several serious injuries	Significant loss of equipment or system interruption, requiring weeks to repair	$ 1,000,000 to $ 4,999,999	• Prolonged media campaign • Serious reputational damage • Sustained government involvement • Duration days to weeks
Moderate 3	• Serious injuries • Numerous moderate to minor injuries	Some loss of equipment or system interruption, requiring seven or less days to repair	$ 500,000 to $ 999,999	• Adverse media coverage • Reputational damage • Government involvement • Duration days
Minor 4	• Serious injury • Multiple minor injuries	• Some loss of equipment • Nominal system interruption • 24 hrs or less, to repair	$ 25,000 to $ 499,999	• Local media coverage • Some reputational damage • Government interest but little action, if any
Minimal 5	• A few minor injuries or no injuries	• Minor equipment damage • No or negligible system interruption • No immediate repair	$ 24,999 or less	• No adverse media coverage • No reputational damage • Little or no government interest, and no action

Severity is a subjective measure of a hazard's worst credible consequence. Not all characteristics may apply to a given hazard. When more than one characteristic applies, choose the level that best reflects the characteristics.

Table 6: Hazard Probability Rating System

Probability Level	Probability Characteristics		
	By Individual Item	By Fleet or Inventory	Frequency
Frequent A	Experienced frequently in the life of an item	Experienced continually	36 or more times in 1 year
Probable B	Will occur often in the life of an item	Will occur regularly	Greater than 12 times but less than 36 times in 1 year
Likely C	Will occur several times in the life of an item	Will occur several times	Greater than 1 but less than 11 times in 1 year
Occasional D	Likely to occur some times in the life of an item	Likely to occur a few times	Would not occur more than 1 time in a 10 year period
Remote E	Unlikely but possible to occur in the life of an item	Unlikely but possible to occur in the life of the system	Would not occur more than 1 time in a 50 year period
Improbable F	So unlikely, it can be presumed that occurrence won't be experienced	So unlikely, it can be presumed that occurrence won't be experienced	Unlikely to occur within a 100 year period

A hazard's likelihood can be estimated in occurrences over time or item life expectancy. Probability may also be expressed as a rate of occurrences per other unit of measurement (e.g., revenue miles driven). Our Probability chart doesn't reflect rates, but in some cases where it may be appropriate, one may propose to SAF.

Table 7: Hazard Risk Index

Hazard Risk Index					
Probability	Severity				
	Catastrophe 1	Critical 2	Moderate 3	Minor 4	Minimal 5
Frequent A	1A	2A	3A	4A	5A
Probable B	1B	2B	3B	4B	5B
Likely C	1C	2C	3C	4C	5C
Occasional D	1D	2D	3D	4D	5D
Remote E	1E	2E	3E	4E	5E
Improbable F	1F	2F	3F	4F	5F

Table 8: Risk Decision Levels

Level	Risk Decision
1	Hazard is unacceptable. Activity or use must be halted until hazard is mitigated to a Level 3 or lower. Hazard must be submitted to and reviewed by the Chief Safety Officer. Hazard must be recorded and tracked in the District's Hazard Log.
2	Hazard is undesirable. Mitigation is highest priority. Activity or use should be halted until review. Hazard must be submitted to and reviewed by the Chief Safety Officer. Hazard must be recorded and tracked in the District's Hazard Log.
3*	Hazard is significant and mitigation is a high priority. Hazard must be reviewed by the Transit Change & Review Committee. Hazard must be recorded and tracked in the District's Hazard Log.
4*	Hazard is moderate and mitigation is required. Hazard must be elevated to the Safety Department for review and input. Hazards must be recorded and tracked in the District's Hazard Log.
5*	The hazard is minor. Mitigation must be evaluated and addressed at the local functional or project level. The hazard must be recorded and tracked in the District's Hazard Log.

** Levels 3, 4, & 5 may be considered tolerable provided the rating has been made after mitigating the hazard to a risk as low as reasonably practicable.*

4.2.4 Risk Tolerability Non-Consensus Procedures

Typically, the initial hazard evaluation of new or revised processes or equipment is made through the applicable WSC. However, nothing precludes other safety-related committees, management teams, or SAF from identifying and rating hazards. Committee or manager meetings that involve assessing a hazard and recommended mitigations must be included in the minutes. Hazards must be routed to SAF to log into the safety management information system (SMIS). Regardless, SMEs from relevant departments should be involved in the process. Hazard ratings that appear grossly over or under-rated will be reassessed by SAF, and changes are communicated by distributing the updated Hazard Log. Note: hazards identified in a PHA are excluded from this process.

As part of *ASP* Implementation, each department must establish a process to facilitate escalation in accordance with the Risk Decision Levels 1, 2, 3, and 4. The process should be managed through the WSC or safety-related committee, but justified exceptions may be made. The process requires the affected management team to bring the hazard for discussion and input from the recipient named in the corresponding Risk Decision Level. The presentation must include known issues and documentation. For each Risk Decision greater than Level 5, the recipient will determine whether to address the hazard or refer it to a lower level (including the affected department), provided it is appropriately justified, documented, and retained in the corresponding SMIS record.

Hazards identified as immediately dangerous to life or health (IDLH) require the following response:

- SAF must be notified immediately (but not more than 15 minutes after identifying the condition);
- The related work must cease;
- A hazard assessment must be conducted; and,
- Emergency mitigations must be put in place before resuming normal operations.

4.3 General Safety Risk Mitigation Procedures

Safety Risk Mitigation is a methodology to manage risk. Safety performance targets are achieved through a continual improvement process consisting of initial, ongoing, and revised mitigations. CAPs are implemented to reduce risk to as low as reasonably practicable using the hierarchy of controls:

- *Levels 1 & 2*: require a formal CAP developed through the Executive Leadership Team, or its designee, to mitigate the risk (***Note:*** *CAPs subject to SSO must be approved by ODOT before implementation and verified by ODOT before closing, see SAF-013 for details*), additionally:
    - *Level 1* hazards require the immediate cessation of work, and the responsible department must implement emergency mitigations that bring the risk to a level 3 or lower;
    - *Level 2* hazards should be mitigated expeditiously; the work should be halted until emergency mitigations are implemented;
- *Level 3*: risks may and should be mitigated immediately by the local functional or project level, but the mitigation must be reviewed at TCRC for concurrence of the final mitigation or refer the issue back for further mitigation efforts;
- *Level 4*: hazards may be addressed at the local or project level but require SAF input, guidance, and concurrence. If concurrence is not achieved, further mitigation is required; and,
- *Level 5*: hazards, minimal risks, or close calls may be facilitated at the local functional or project level (e.g., a WSC or project team) in conjunction with the affected management team.

In all cases, the hazard, mitigations, or corrective actions must be documented in the meeting minutes and the corresponding SMIS Action Item Record (including uploading and attaching documentation supporting completion). See section 5.2 for more details about CAPs.

Figure 7: Hierarchy of Controls

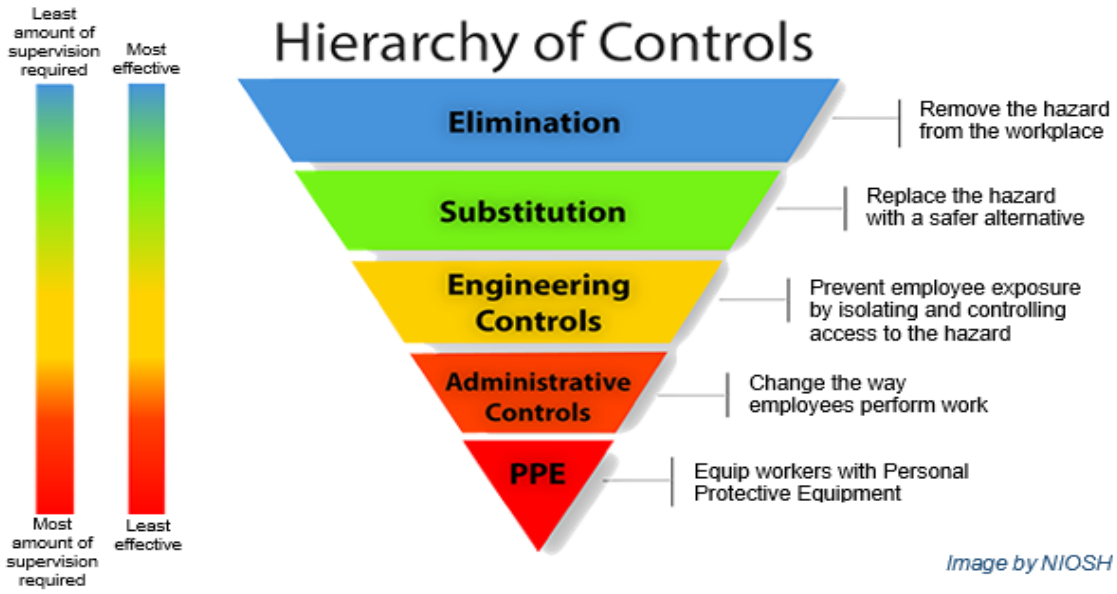


Table 9: Mitigation Strategies Using Hierarchy of Controls

Hierarchy of Controls Hazard Mitigation Strategies The order of selection always begins with item 1 and moves down	
1 Eliminate, Substitute, or Engineer the Hazard Out	
a Best: Eliminate	**Design for Minimum Risk:** When possible, eliminate the hazard entirely through design change. Analyze whether eliminating a hazard might result in unintended adverse consequences.
b Better: Substitute	**Select Less Hazardous Options:** If a hazard can't be eliminated, explore the possibility of substituting a less hazardous alternative that reduces the hazard to an acceptable level.
c Good: Engineer-out	**Reconfigure, or install protective or warning devices:** If elimination and substitution aren't viable options, determine whether the hazard can be eliminated through engineering (such as rerouting a low hanging pipe that poses a overhead hazard), or explore safety devices that can effectively reduce the hazard, including devices that trigger automatic shutdown of machinery or produce am audible or visual alert. Warning signals and their application must be designed to minimize probability of incorrect employee reaction to the hazard.
2 Administrative Controls	
Note: No warning or other form of written advisory, may be used as the only risk-reduction method for Level 1 or 2 hazards, unless approved by the Chief Safety Officer.	**Develop General or Standard Operating Procedures and Training:** Where it is impractical to eliminate hazards through design selection or adequately reduce the associated risk with safety and warning devices, develop and implement procedures and training. Tasks and activities that are determined to be critical require certification of personnel competency and proficiency
3 Personal Protective Equipment	
Note: PPE is always a last resort, used only after the previous strategies have been evaluated and, if feasible, implemented to a reasonable degree.	If a hazard cannot be eliminated or adequately controlled with administrative controls, personal protective equipment (PPE) may be used. Use of PPE requires corresponding written procedures for, at minimum, the selection, application, care, maintenance, and storage. Training on the proper use of the PPE is required prior to personnel being placed in an environment requiring use of such equipment.

4.3.1 Assessment of Mitigation Options

Not all mitigations have the same potential for reducing risks from a hazard. Mitigation options may introduce other hazards or risks. The potential dangers of each identified resolution option must be documented and assessed before selection is made; this supports selecting the option most promising for achieving the desired outcomes. The resulting documentation must be preserved in the SMIS by linking an action item record (AIR) to the hazard record, then uploading and attaching them to the AIR.

Departments or SMEs should collaborate with SAF through the assessment and selection process. SAF is also available to guide the responsible department or party through the actions required to retain the assessments made of the mitigation options.

4.3.2 Risk Mitigation Ownership, Implementation, & Tracking

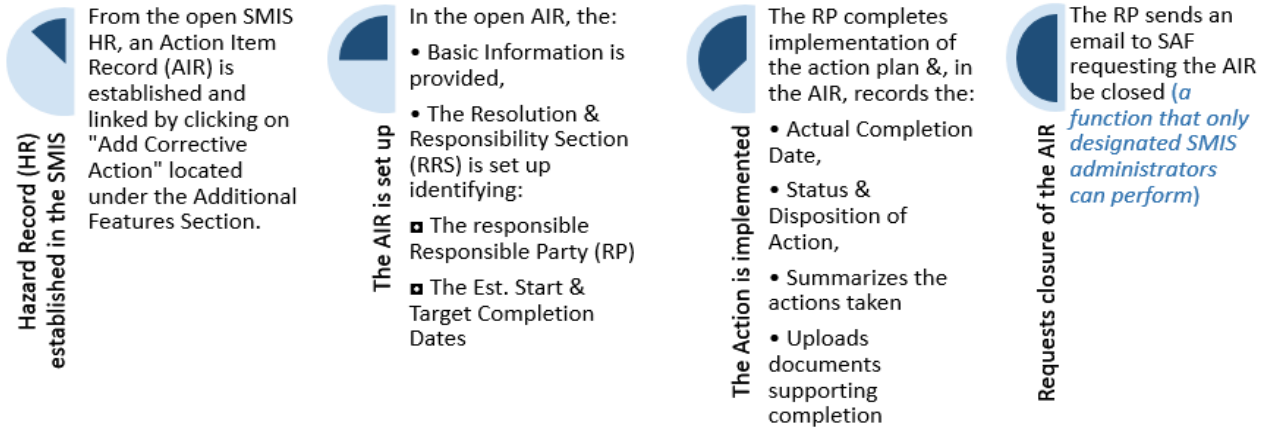
Unless a hazard is eliminated, the risk still exists despite mitigation efforts. Hazards must be appropriately documented and subject to continual assessment. Currently:

1. Department managers are responsible for ensuring identified hazards are routed to SAF,
2. SAF is responsible for establishing a hazard record (HR) in the SMIS,
3. Departments' managers are responsible for the implementation and tracking of their respective mitigations and
4. SAF staff are responsible for monitoring the effectiveness of mitigation strategies through periodic checks. These checks may be done by site inspections, analyzing injury or loss runs from data collection systems, interviews or surveys, or other proven verification methods.

Typically, a hazard is recorded only once in the SMIS Hazard Module. Regrettably, a hazard record isn't accessible to multiple departments or divisions. This limitation is due to the SMIS requirement that records are tethered to a specific organizational hierarchy to protect confidential information. User permissions correlate with this hierarchy. While there is no mechanism to override this feature, the Hazard Recording Process provides a workaround detailed below in the paragraph titled **Workaround for record-access limitations in the SMIS**.

The plan for mitigating a hazard and its residual hazard rating after the mitigation is implemented are also recorded in the SMIS and linked to the corresponding Hazard Record. The AIR is specific to the responsible department and accessible to authorized SMIS users. Once the action plan is completed, the responsible department assesses the effectiveness of the mitigation and adjusts the residual hazard rating value accordingly using the Hazard Rating Systems provided in *ASP § 4.2.3* of this document. Figure 8 depicts an overview of the process, from establishing a hazard record to completing its corresponding action item record.

Figure 8: Logging a Hazard & Subsequent Action Item Record



While the process for logging hazards and their subsequent corrective actions has been established, SAF is developing a formal, District-wide procedure to describe the process and provide readily accessible, detailed

guidance to ensure consistency in application and completeness of subsequent records. In the meantime, route questions or requests for assistance to the Manager, Safety Management Systems and Manager, Regulatory Compliance & Safety Assurance.

Hazards logged in SMIS are periodically reviewed to assess and, if applicable, adjust the HRI value. The frequency of these reviews is determined by HRI value and prioritized from highest to lowest. This process is the responsibility of SAF and is accomplished by reviewing a hazard's corresponding AIRs, assessing the residual HRI values, and adjusting the HRI value in the hazard record if needed. SAF may convene stakeholder participation or delegate hazards with low HRI values to applicable safety or safety-related committees. If delegated, SAF will provide the records and any other relevant materials necessary for the delegate to perform the task. Regardless, SAF is responsible for ratifying adjusted HRI values.

Workaround for record-access limitations in the SMIS: Hazards may apply to multiple divisions or departments or require joint mitigation efforts. SAF has developed the following workaround while alternatives are explored for viability and feasibility. Exploration, identification, construction, and implementation of a suitable alternative may require long-term effort, planning, budgeting, or securing funding. In the meantime, SAF's workaround is outlined as follows:

1. Once SAF has established the hazard record in SMIS, it will link an AIR specific to the affected department and attach a printed copy of the hazard record for reference;
2. The affected department's responsible party develops a mitigation plan, records it in the AIR, implements the mitigation, finishes the AIR, and emails a request to SAF to verify and close the record;
3. The hazard will be communicated, at minimum, to other potentially affected departments through regular publication of a log of hazards that is sent to applicable WSCs;
4. WSCs are responsible for reviewing the hazard log during meetings, assessing whether the departments that make up its membership have adequate controls in place or need to initiate corrective action, and recording the review and assessment in their meeting minutes;
5. If a WSC identifies a need for a CAP, it will notify SAF through its assigned SAF representative;
6. The assigned representative opens the Hazard Record, links an AIR specific to the affected department(s), attaches a PDF copy of the Hazard Record to the AIR, and sends an email notification to the affected department's responsible party that the AIR is ready for its use (copying the WSC); and,
7. The process repeats beginning with the second bullet above.

4.3.3 Safety Performance Targets

The following performance targets are aligned with the National Public Transportation Safety Plan supporting the four measures: fatalities, injuries, major-safety events, and system reliability. The data comprises a rolling three-year average of information reported to NTD, which we calculate annually prior to submitting the ASP to our SSO for review.

If a safety performance target is not realized, a safety set-aside of not less than 0.75% of assistance received from FTA under *49 USC 5307* will be made (*as required under 49 USC §5329(d)(4)(B)*; the funds are dedicated to developing and implementing safety projects that are reasonably likely to assist us in attaining the target. Such projects may include modification to rolling stock or de-escalation training to prevent or reduce assaults on public-facing employees.

Performance targets are made available and coordinated with the State and the Metropolitan Planning Organization (per *Part 673.15(a)&(b)*).

Table 10: Performance Targets & System Reliability

Accessible Transportation Program

Event Type	3-Yr Ave		Target	
	No.[1]	Rate[3]	No.[1]	Rate[3]
Fatalities	0	0.00	0	0.00
Injuries	0	0.00	0	0.00
Collisions[4]	2.33	0.63	2.17	0.58
Bus left roadway[5]	0	0.00	0	0.00
Evacuation for Life Safety	0	0.00	0	0.00
Run-a-way Bus	0	0.00	0	0.00
Fire	0.33	0.09	0.17	0.046
Total Major Events	**2.67**	**0.72**	**2.67**	**0.72**

District-wide

Event Type	3-Yr Ave		Target	
	No.[1]	Rate[6]	No.[1]	Rate[6]
Employee Injuries	277	10.19	275	10.12
Assaults, Transit Workers	3.33	0.12	3.33	0.12

Fixed Route Bus

Event Type	3-Yr Ave		Target	
	No.[1]	Rate[3]	No.[1]	Rate[3]
Fatalities	0	0.00	0	0.00
Injuries	1	0.05	0.9	0.046
Collisions[4]	52	2.63	51.5	2.61
Bus left roadway[5]	0	0.00	0	0.00
Evacuation for Life Safety	0.3	0.02	0.3	0.02
Run-a-way Bus	0	0.00	0	0.00
Fire	0.3	0.02	0.3	0.02
Total Major Events	**53.67**	**2.72**	**53**	**2.68**

System Reliability for all modes covered under the ASP

Mean Distance Between Mechanical Failure	3-Yr Ave		Target	
	No.[2]	Rate[3]	No.[2]	Rate[3]
Accessible Transportation Program	3,359	829	3,393	837
Fixed Route Bus	9,331	400	9,424	404
Metropolitan Area Express Light Rail	32,305	3,967	32,628	4,006

Metropolitan Area Express Light Rail

Event Type	3-Yr Ave		Target	
	No.[1]	Rate[3]	No.[1]	Rate[3]
Fatalities	1	0.25	0.80	0.20
Injuries	0.33	0.08	0.33	0.08
Collisions[4]	40	9.87	39	9.62
Derailment	1.67	0.41	1.58	0.39
Evacuation for Life Safety	0.33	0.08	0.33	0.08
Run-a-way Train	0	0.00	0	0.00
Fire	0.33	0.08	0.25	0.06
Total Major Events	**43.67**	**10.77**	**42.30**	**10.43**

The following notes apply to the Performance Targets tables:

1. Unless noted otherwise, the data comprises a three calendar-year average of years 2021, 2022, & 2023.
2. Data comprises a three, fiscal-year average of years 2021, 2022, 2023.
3. Rate per 1,000,000 revenue vehicle miles.
4. Excluding contact in a yard that does not result in bodily injury, disables the vehicle from revenue service, or, for buses, results in property damage greater than $1,000.00.
5. Excluding events where one tire leaves the traveling surface, such as rolling over a curb while making a sharp turn.
6. Rate per 200,000 hours worked.

4.3.3.1 Risk Reduction Program

Our safety goal equates to designing, constructing, testing, and operating a transportation system that attains an optimum level of safety by effectively managing safety risks. The *ASP* is foundational for achieving this goal within TriMet's strategic business goals and constraints and accomplished, in part, through the application of the analytical techniques and methods described in *Section 4.3* for resolving safety risks as low as reasonably practicable.

This section describes our activities to achieve the established TriMet safety performance targets of our Risk Reduction Program, per *USC §5329(d)(1)(I)(i)&(ii)*. We use existing data systems to collect accurate and pertinent information to monitor and measure performance and report on the status of meeting targets.

Table 11: Summary of Risk Reduction Program Activities & Initiatives

Focus areas	Activities & Initiatives
Vehicle Collisions, Fatalities, Injuries	• Vision Zero. Partnering with City of Portland's Bureau of Transportation and Metro on components focused on the reduction of vehicular and pedestrian accidents involving transit vehicles. • FTA Grant for developing a risk-ranking tool for improving light rail intersections safety. • Restructuring and rebuilding a more robust new operator training program including the addition of defensive vehicle operations component.

Mitigation for reducing assaults on transit workers	TriMet continues to use a variety of measures to prevent assaults on transit workers, including but not limited to:
	• Reimagine Public Safety program that established the Customer Safety Supervisor group and the Safety Response Team.
	• Published Passenger Code of Conduct on TriMet's public website and revenue vehicles.
	• Signage for:
	  ○ TriMet's Code of Conduct for patrons and passengers
	  ○ Penalties for non-compliance
	  ○ Automated vehicle tracking
	  ○ Badge access to secured facilities (including operator break rooms at transit centers).
	• Legislation increasing penalties and enforcement against assailants.
	• Incorporating Crime Prevention Through Environmental Design in new construction and renovations of existing facilities.
	• Automated vehicle location tracking.
	• Improved LED illumination along the MAX alignment.
	• Installing high definition CCTV cameras with real-time surveillance capabilities on rail platforms, transit centers, and revenue vehicles.
	• Silent emergency alarms in revenue vehicles.
	• Cooperate with law enforcement by following security procedures, providing video footage and other actions or materials law enforcement needs to pursue assailants.
	• Installation of bus operator security barriers to prevent unwanted entry of persons or objects into the operator's area (piloted in 2017, expanded in 2018 to include retrofitting barriers on existing fleets and added as a standard specification for new buses; and upgraded in 2022 and completed in 2023).

4.3.3.2 Procurement Processes Supporting Risk Reduction

Procurement of new systems, such as facilities, equipment, buses, and light rail vehicles, include safety requirements in specifications, design reviews, testing, and configuration control. These procurements trigger consultation with SAF to ensure basic system safety principles.

Consideration is made for safety requirements including but not limited to:

- Incorporation of "fail-safe" principles when failures would cause a catastrophe resulting in injury to personnel, damage, or inadvertent activation of equipment.
- Avoidance, elimination, or reduction of identified safety hazards, including visibility impairments that contribute to safety events (including retrofits to existing vehicles or equipment), through design change, safety devices, and parts or materials selection.
- Design to minimize severe damage to equipment or injury to personnel in the event of an accident.
- Avoidance of undue exposure to physiological and psychological stresses, which might cause errors leading to an accident.

- Provision of suitable warning and cautionary notes in instruction for operation, assembly, maintenance and repair, and distinctive markings for personnel protection on hazardous components, equipment, and facilities.

4.4 Capturing & Sharing Data: Responsibilities & Systems

SMS is data-driven. Data is vital to SMS because it supports building a compelling narrative based on analytics that influence and inform such processes as:

- Decision-making to secure or allocate resources; crafting focused mitigations or safety campaigns;
- Safety performance monitoring toward achieving safety goals and objectives, including conducting trends analysis and early identification and correction of emerging safety issues;
- Reporting safety performance, achievements, and challenges to the AE, CSO, executive directors, directors, and department management teams; and,
- Demonstrating regulatory compliance obligations are met.

In the same vein, that safety is everyone's responsibility, ensuring the collection of safety data is shared District-wide. TriMet has not yet migrated to a comprehensive information management system. Subsequently, safety data is captured and obtained from multiple mechanisms (see Table 11 for details about standard data systems that provide crucial information).

Similarly, by implementing our agency's Transit Asset Management (TAM) Plan, required under *49 C.F.R. Part 625*, Facilities Management reports the results of its condition assessments while performing *ASP* activities. The results of the condition assessments and subsequent SMS analysis will inform TriMet's TAM Plan elements, specifically investment priorities. The AE has the ultimate responsibility for decision-making throughout this data reporting process.

The following summarizes typical responsibilities between departments, SAF, and other internal stakeholders for contributing data in standard or department-specific databases:

Departments' Responsibilities:

- *SMIS:* Entering employee injuries into the 'Safety Event Module,' inspections into the 'Audits, Inspections, and Surveys Module,' and (except hazard records) linking 'AIRs,' as applicable, to applicable records contained therein; developing and recording action plans in their respective AIRs; completing the AIRs (including uploading documents that support completion) and sending requests to SAF to close completed records;
- *SIPs & RSAs:* Reviewing records, responding to requests for information, action items, or follow-up, and recording their responses in these databases and, if applicable, uploading and attaching relevant documents to the record;
- *Accident Incident Database (ACID):* Ensuring, where required or applicable, that its staff make timely reports to OCC of required notifications of safety events;
- *Division-specific safety data collection systems*, such as the Maintenance Management Information System, for tracking, managing, and reporting revenue vehicle performance or potentially hazardous equipment failures; and
- *Department-specific safety data collection systems*, such as the Competency Management System (CMS), for tracking, managing, and reporting employee performance regarding safety rule compliance.

SAF responsibilities:

- *SMIS:* Reviewing records to ensure accuracy and completeness, communicating discrepancies identified during record reviews; entering hazards into the Hazard Module, linking AIRs for department-specific use, and reporting results to senior management or regulatory agencies; generating from SMS and disseminating them to affected stakeholders (e.g., summaries of employee injuries and hazard logs to support WSC regulatory required responsibilities);

- *RSAs:* Administer the RSA program and generate monthly, quarterly, and annual performance reports for distribution to stakeholders (e.g., WSCs, TCRC);
- *ACID:* Pulling records for use in hazards or safety performance reports submitted to OR-OSHA, ODOT, or FRA that contain injury or property damage resulting from safety events about customers, employees, and the public; trending analysis and communicating safety events and emerging issues, source data for conducting safety event investigations, and supporting processes for vehicle review and appeals activities for determining preventability; and
- *Other systems or sources:* to identify and communicate design inadequacies,

Table 12: Sources that Provide Input about Safety Events

Sources that Provide Input to Accidents, Incidents, and Hazards	
Occupational Injury or Illness	The employee and supervisors complete a Report of Occupational Injury/Illness (ROI) for job-related injury or illness. The standard report is completed in hard copy and scanned, or online. Once completed, the form is uploaded by the affected department's management team or designee into the SMIS database. These reports are reviewed by downstream stakeholders. Issues may be identified and discussed at the applicable workplace safety committee meetings, the affected management team, or the IIJASC. Items requiring review may be placed on the TCRC agenda. The process is outlined in GOP-052: Reporting Employee Injuries.
Operations Command Center	The Operations Command Center (OCC) is the information collection center of TriMet. The OCC is comprised of two groups: Dispatch and Control. • Dispatch monitors and directs bus operations • Control monitors and directs rail operations All radio communication to the field is made through the OCC. Information concerning day-to-day issues and operations is relayed from the field to the OCC; information meeting predetermined criteria is entered into the Accident Incident Database (ACID) as received.
Safety Management Information System Database	The Safety Management Information System is used to collect and maintain a variety of TriMet data. Employee injuries, safety inspections, hazard records, and corrective actions are entered into the system. Management teams have access to SMIS to pull their corresponding department-specific information for trend analysis. The information may also be used to: • Make accident notifications to regulatory agencies • Send records to management through the system's email • Make decisions about accident accountability • Supply maintenance information to Maintenance shift supervisors • Conduct trend analysis

Data from systems such as these become the basis for safety dashboards available to managers and committees and may be used to demonstrate or report adherence to safety regulatory requirements.

5.0 SMS Component III – Safety Assurance

Safety Assurance is critical to the SMS. SRM and Safety Assurance are integrated to form a feedback loop supporting the SMS. This chapter outlines how we implement, measure, and review processes to ensure they comply with established standards. The methods and reports prove to our leadership that the organization and system are functioning within acceptable levels. ISRs, audits, inspections, verifications, and compliance checks provide assurance that SMS is integrated District-wide and functioning satisfactorily.

5.1 Safety Assurance Processes

SA in TriMet is ensured through efforts in several core areas:

- Oversight of Safety and Security Certification;
- Collecting, tracking, and analyzing data;

- Monitoring safety performance metrics;
- Conducting ISRs or audits;
- Regulatory reporting to OR-OSHA, ODOT, FTA, and FRA;
- Oversight mechanisms for ensuring responsible parties' performance of:
    - Configuration and change management;
    - Safety system certifications;
    - Procurement processes;
    - Continual improvement processes;
    - CMS and other field observation activities;
    - Inspections of facilities, equipment, and preventative maintenance systems;
    - Safety reviews or audits performed by contracted professional technical services;
- Activities for conducting safety event investigations to identify causal or contributing factors; and,
- Identification and monitoring of new or revised safety standards or regulations.

5.1.1 Safety Performance Monitoring & Measurement

SMS performance monitoring and measurement at TriMet involves ongoing collection of safety data metrics to ensure that crucial safety goals are achieved. Departments and functional groups are responsible for conducting hazard identification activities and developing risk reduction efforts that include safety critical elements. These activities must be documented and retained by the affected department and made available to SAF upon request. Processes and activities are subject to verification conducted by or at the behest of SAF. Once defined, hazards or findings of non-compliance are subject to hazard rating under *ASP § 4.2.3*.

5.1.2 Internal Safety Review Program

The ISR program aims to inform management about whether safety programs, processes, or activities meet planned and published safety requirements and whether or not objectives are being met. The Director of Safety & Environmental Services is responsible for ensuring ISRs are performed.

There are two functional groups responsible for conducting reviews:

- SAF's Regulatory Compliance & Safety Assurance Team conducts scheduled and random ISRs; and,
- As part of the Internal Auditing Department's (IAD) risk assessment process, they may conduct internal safety audits (ISAs) that are high or moderate risk and/or where a conflict of interest may preclude SAF from performing an ISR.

These functional groups have aligned aspects within their respective programs to ensure consistency in process requirements under *OAR 741-060-0070* that governs ISRs and are authorized by TriMet management to engage in standard auditing activities necessary to verify program compliance with requirements and policies. The description of each ISR or ISA includes the department(s) and functions subject to the review, responsibility for scheduling the review, the process for conducting the review (including the development of checklists and the issuing of reports containing findings from the review); and tracking the status of findings through resolution. The process, maintained by SAF, is outlined in the ISR program document, which is posted on TriNet.

ISRs conducted on light rail transportation and maintenance operations: In accordance with *OAR 741-060-0070*, five ISRs are conducted annually on light rail transportation and maintenance operations to assess the implementation and execution of and compliance with the *ASP* and the *EPRP*. One review shall cover rule compliance activities as outlined in our *Compentency Management System*, and one shall cover configuration management. The remaining reviews will focus on the implementation and effectiveness of the *ASP* or *EPRP*.

ODOT is notified of ISRs or ISAs at least 30 days in advance and may elect to participate. Upon conclusion of an ISR or ISA, the controlling functional group is responsible for preparing a report detailing the review (including findings, hazard rating the findings, and recommended actions). SAF is responsible for establishing an SMIS record (origin record) to house the final report (source document) and submitting the ISR report to the affected department and copying ODOT. IAD is responsible for submitting the ISA report to the affected department and

copying ODOT and SAF. The affected department is responsible for developing and recording its plans for implementing a CAP to address the findings and recommendations in an AIR linked to the origin record.

Any finding rated undesirable or unacceptable (using the Hazard Rating System under *ASP § 4.2.3)* falls under ODOT's oversight (see *SOP SAF-013* for details). In these cases, and within 30 days after the final report has been published, the department must:

1. Develop a proposed CAP that includes milestones, responsible parties, and target completion dates for each milestone;
2. Submit the CAP to the MRCSA who will, in turn, submit the CAP to ODOT;
3. Refrain from implementing any of the proposed CAP until it receives ODOT approval;
4. Complete each milestone by its target date (and upload documentation supporting completion of the milestone to the AIR);
5. Complete the CAP by the final target completion date;
6. Submit a request to close the CAP to the MRCSA who will, in turn, submit a request to ODOT indicating the CAP is completed and requesting verification and approval to close.

Additionally, internal reviews are documented in an annual report that covers the reviews performed and the results of each review, and they are submitted by electronic copy to ODOT by February 15th of the following year, under the signature of the AE.

Tables 12 and 13 depict the standard approach for implementing ISRs.

Table 13: Conducting Light Rail & Bus Depts. Internal Safety Reviews on a Three-Year Cycle by Dept.

By Dept. or *Subject, Rail	Year 1	2	3
*Configuration & Change Management	✓	✓	✓
*Safety Rules Compliance	✓	✓	✓
Operations Command Center	✓		
Facility Management	✓		
Transportation Operations	✓		
Equipment Maintenance		✓	
Field Operations		✓	
Maintenance of Way		✓	
Engineering & Construction			✓
Training, Maintenance Operations			✓
Training, Transportation Operations			✓

*As required under OAR 741-060-0070(2)

By Bus Dept. or *Agency-wide	Year 1	2	3
Facility Management	✓		
Operations Command Center	✓		
Dispatch Center & Field Ops (ATP)	✓		
Field Operations		✓	
Bus Maintenance		✓	
Transportation Operations		✓	
*Emergency Management			✓
Engineering & Construction			✓
Training, Operations & Maintenance			✓

Table 14: Internal Safety Review Elements & Sub Elements

ISR Elements	Sub-Elements
Safety Policies & Programs	Safety Performance Goals & Obj.s
	Roles, Responsibilities, & Accountabilities
	Policies, Programs, Plans, & SOPs
	Safety or safety-related committees
	Reporting & Recording Employee Inj.
	Vehicle Accident Reviews
	Hours of service
	Drug & Alcohol
	Employee involvement in safety effort
	Facility Emergency Preparedness
	Document retention
Safety Risk Mgmt	Hazard Identification & Reporting
	Hazard Assessment & Rating
	Haz.Mitigation (Hierarchy of Controls)
	Procurement
	Request for Safety Assessment
	Safety Inspections
Safety Assurance	Safety Supervision of Staff
	*Configuration & Change Management
	Regulatory Reporting Compliance
	Event Investigations
	*Safety Rules Compliance
	Corrective Action Plans
	Continual Safety Improvement
Safety Promotion	Orienting New Employees
	Required Employee Safety Training
	Safety Communications
	Promotion Activities & Campaigns

*These subjects apply only to Bus-related ISRs

5.2 Corrective Action Plans & Process

Using the SMIS, each work group supports our agency's ability to trend and analyze hazards or safety risks and prioritize mitigation strategies; it also ensures regulatory compliance with OR-OSHA, FTA, ODOT, and FRA.

CAPs addressing Level 1 or Level 2 safety deficiencies that have an actual or potential detrimental impact on our Agency, including failure to meet performance targets, or substandard safety management efforts, which fall under the direction of the AE, see SOP SAF-013 Action Plans & ODOT CAPs, Policy, & Procedures. The AE may delegate responsibility for the development and implementation of any given CAP but retains ultimate responsibility for ensuring timely action and completion. CAPs of this significance are reported weekly to the Senior Leadership Team, comprised of the General Manager, Chief Operating Officer (our AE), and Executive Director of Safety & Security (our CSO). The Senior Leadership Team meets weekly. CAPs that fall under the AE's direction are a standing agenda item for the meetings.CAPs are developed to address deficiencies identified through SRM and Safety Assurance activities or from regulatory agencies. Regardless of the required processes, nothing prevents or delays our ability to implement emergency corrective actions to secure the immediate safety of people, our transit system and customers, or our assets. The following provides an overview about CAPs, see detailed steps in *SAF-013*, which is incorporated into the *ASP* by reference.

As the designated SSOA for FTA, ODOT has the authority to require and enforce corrective actions to ensure the safety of RFGPTS. In these cases, we will follow requirements under *OAR 741-060-0072* to develop, acquire ODOT approval and oversight, and complete a CAP as needed for Level 1 or Level 2 hazards or in response to audits, reviews, inspections, or requests from ODOT. If emergency action was taken to address a condition IDLH, the responsible department will include them in the CAP along with remaining corrective actions, and submit the completed plan to the MRCSA. The MRCSA, in turn, will submit the CAP to ODOT for approval.

As stated in *ASP § 4.0*, hazards are 'owned' by the department whose operations are associated with the risk. While multiple workgroups may be involved in mitigation efforts, each department is tasked with identifying a primary responsible party to ensure the development, documentation, and completion of its CAP. In the case of actions involving multiple departments, the risk owners will coordinate to develop actions to provide a seamless and organized approach to correct the deficiency.

CAPs must include a description of the findings, the recommended action(s), the department's plan detailing how it will address the findings, major milestones (each with a corresponding target completion date and the responsible party or parties), the primary responsible party (PRP) who will ensure milestones are completed, and a target completion date for the CAP. Updates must be recorded in the AIR upon completion of each milestone along with documentation supporting completion of the milestone, see *SOP SAF-013* for details about developing CAPs; a copy is posted on SAF's TriNet page along with a corresponding development worksheet and other necessary forms.

For CAPs pertaining to light rail, responsible parties are expected to provide updates to ODOT at the quarterly meetings as required under *OAR 741-060-0078(2)*. When the CAP has been completed, the responsible party notifies the MRCSA by email, who, in turn, will request that ODOT verify it and approve it for closure.

5.2.1 Corrective Action Plans Under Regulatory Agency Oversight

Departments are required to send SAF electronic copies of any letter of complaint, inspection, investigation, or audit report received from a regulatory agency. Submittal of these source documents must be made via email addressed to the Safety Director, Manager of SMS, MRCSA, and copied to safety@trimet.org.

Once received, SAF will ensure the source document is recorded in an SMIS origin record, communicate the deficiencies to the affected management team(s), and the CAP process will follow the steps outlined in *ASP § 5.2 and SOP SAF-013*.

If we disagree with a regulatory agency's inspection, investigation, or audit, we follow the agency's process for expressing dissent. In the case of ODOT, that process is outlined under *OAR 741-060-0090(6).*

5.3 Safety Event Reporting & Investigation Responsibilities

Each division is responsible for ensuring that its departments' management teams conduct investigations of safety events and close calls in their respective departments and immediately notify SAF of any that meet regulatory reporting criteria listed under *ASP § 5.5*. Investigations must include identifying causal and contributing factors, include root cause, and the completed report must be uploaded and attached to the corresponding Safety Event record in our SMIS. For employee injuries, management completes the last two sections of the Report of Personal Injury or Occupational Illness form; these are the Supervisor Information Section and Preliminary Analysis. Departments may request guidance from SAF.

Rail and road supervisors are first responders to safety events that occur on the transit system (e.g., revenue vehicles, transit centers, railways, stations, platforms, roadways, and bus stops). They may also be routed to safety events in or around revenue vehicle yards. They are responsible for maintaining contact with OCC to report vital information and the status of restoring revenue service. Their responsibilities include securing the scene and collecting crucial event information and evidence, including information about the other party involved, photographs, witness statements, roadway or trackway conditions, treatments, signs, and scene sketches. Rail supervisors use the Rail Event Form, and road supervisors use the Road Supervisor Event Report and, if necessary, its companion Supplemental Form. The final reports are uploaded to the Outlook Public Folder titled "Digital Sender," which ensures downstream stakeholders can retrieve the reports as needed.

SAF is responsible for conducting investigations of high-severity safety events (e.g., serious or fatal injury, derailment, prohibited movement of a revenue vehicle onto a surface not authorized for vehicular traffic, run-a-way vehicle, or evacuation for life safety). SAF accomplishes this through its Safety Duty Officer (SDO) program. SDOs report to safety event scenes of prolonged duration to ensure collection and preservation of evidence or follow-up later to take additional photos (if needed) or assess lines-of-sight, signs, signals, and roadway treatments. In some situations, SAF may use a contractor to perform the investigation or adopt a report in part or whole of an investigation conducted by another department with subject matter expertise. As itemized in the SDO Duty Guide, SDOs retrieve safety event records from multiple sources depending on the record type.

During the course of an investigation, SDOs will determine whether the event source records are complete and accurate. SDOs will return incomplete records to their respective departments for correction and resubmittal. SDOs are responsible for resolving conflicts when source records contain conflicting information and noting the verified correct information in their investigation reports.

SDOs are responsible for using specified templates for investigations, these are located in the SDO on-call duty folder in the shared Safety Network Drive. In the Conclusions section of the investigation report form, SDOs record causal or contributing factors, each identified hazard must be rated (using the HRI in *ASP § 4.2.3* of this document), and the HRI value and corresponding SMIS Hazard record number.

Departments must notify SAF of any planned post-safety event inspections, examinations, or testing of the involved vehicle, equipment, or machinery at least two business days before the activity will occur.

5.3.1 OR Occupational Safety & Health Admin.: reporting, physical evidence, & investigations

Under *OAR 437-001-0704*, an affected department's management team must immediately notify SAF of a reportable injury or illness and SAF must make notification to OR-OSHA within the periods specified in Table 15.

Under *OAR 437-001-0053*, an affected department's management team must prevent disturbance of the scene of an employee fatality or catastrophe other than to conduct the rescue of persons or mitigate an imminent danger until authorized by the OR-OSHA's administrator or designee.

SAF will conduct a safety event investigation of any reportable injury or illness, produce a final report for the AE and CSO, and copy it to the affected department's management team. While there is no requirement to do so, a courtesy copy of the report will also be sent to OR-OSHA.

At any point after, and by its sole discretion, OR-OSHA may investigate a reported employee fatality or catastrophe. SAF is responsible for coordinating the effort with the affected department.

5.3.2 OR Dept. of Transportation & Federal Railroad Admin.: reporting & investigations

Regulatory oversight of light rail transportation and maintenance operations safety falls primarily under the ODOT, except specific sections of the Orange Line that fall under FRA; refer to *ASP § 4.5.2* of this document for details.

ODOT. By *OAR 741-060-0090* and ODOT's *Program Standard § 10*, for conducting investigations of light-rail-related safety events, when a reportable event occurs and including any post-event inspections, examination, or testing, ODOT must be notified via email so that it may choose whether to participate in the investigation. If ODOT so chooses, it will submit a written notice of intent to SAF, which will notify the affected department. The affected department must then ensure it provides advance notification to ODOT of any planned investigation activities to afford reasonable opportunity for ODOT personnel to participate.

Nothing in this document precludes ODOT from conducting a separate, independent investigation. In such instances, once ODOT has provided notification to SAF of its intent to conduct its own investigation, SAF will assign staff to work with the ODOT investigator to:

- Facilitate access to key TriMet personnel,
- Evidence collected from the scene of the accident,
- Documentation developed as a result of the accident, and
- Assist with orienting the investigator to the accident scene.

SDOs must make a two-stage report to ODOT for each safety event that is investigated. The first is a status update due within 72 hours of the event's occurrence. The second, a continuation of the first report, comprises the final investigation report and is typically due within 60 days after the event. If additional time is needed to prepare a report, the SDO will send ODOT a request for an extension before the date due and explain why the extension is necessary. ODOT provides extensions in 15-day increments, with a maximum of two extensions, as listed in the *Program Standard*.

SAF's Investigation Report Form is structured to include all regulatory required information under the SSO *Program Standard (ver. 2022) §10, §10.1*, and *§10.1.1*. Final investigation reports include findings of causal and contributing factors. Findings that identify a hazardous condition include the corresponding IndustrySafe Hazard Record number. Recommendations for mitigating the hazardous condition include a corresponding IndustrySafe Action Item Record number for the responsible department's management team to record the action it took to mitigate the hazard and prevent recurrence.

Once the final report is completed, it will be submitted to the affected departments' management teams via email. ODOT is copied to the submittal and must review, adopt, or reject the report within the period specified under *OAR 741-060-0090*. The SDO will work with ODOT to make the necessary revisions to gain approval. The status and final reports must include specific attachments, such as the operator's post-event report, the rail supervisor's investigation report and information captured from responding jurisdictions' reports when such is made available to us.

A monthly summary report of events, identified hazards, CAPs under ODOT oversight, and any incurred hours-of-service violations is submitted within 30 days from the last day of the month being reported.

An annual report summarizing TriMet's safety performance is submitted to ODOT by February 15, in compliance with *OAR 41-060-0078(3)(a-g)* and accordance with the *Program Standard*, Section Minimum Requirements for Annual Report on the ISR Program.

FRA. Under *SOP 230 § 3.0.2*, SAF conducts investigations of safety events that occur in any of the nine designated areas along the Orange Line using FRA-required forms. To avoid duplication of effort, SAF will provide copies of these reports to ODOT after they are submitted to FRA.

A monthly summary report of events is submitted within 30 days from the last day of the month covered using FRA's reporting database, AIRGNET. Copies are sent to MOW Signals and OCC and posted on-site at Center Operations Headquarters, Ruby Junction and Elmonica Rail Operations Facilities, and Rose Quarter Maintenance Shop. Each report must remain posted for 12 consecutive months before it may be removed.

An annual summary of events incurred is submitted to FRA within 30 days after the end of each year being reported. This report may be sent as a written report or through AIRGNET. Copies are distributed and posted in the manner of monthly reports, as described in the preceding paragraph.

5.4 Coordination with Regulatory Authorities

The CSO, or designee, is our primary point of contact with all external agencies if a safety event investigation is initiated by one and for providing updates and additional information as necessitated by the event. Notification of safety events is made to OR-OSHA, ODOT, FTA, NTSB (which is not a regulatory agency, but reporting rail-related safety events that meet certain severity thresholds is required), and FRA, and event recording requirements are entered into the National Transit Database (NTD) monthly.

5.5 District-wide Regulatory Reporting

Departments are responsible for notifying SAF of an employee injury that meets OR-OSHA's reporting criteria by contacting OCC or directly calling any SAF staff. The Safety Director, or designee, is responsible for making telephonic notification to OR-OSHA within the periods specified in Table 14 and ensures that the SDO investigating the event sends a copy to OR-OSHA in a timely period.

Table 15: Reporting to Oregon Occupational Safety & Health Administration

OR-OSHA
Notifications are made by the Safety Director, or designee, by phone (503-229-5910) of any event that meets any of the following criteria:
Notifications within 8 hours of occurring or TriMet's knowledge, whichever is first: • Fatality when death occurs within 30 days of the accident (including heart attack while at work or resulting from a motor vehicle collision that occurred during an employee's work shift), • A catastrophe involving a single event that results in two or more employees are fatally injured or three or more employees admitted to a hospital or equivalent medical facility
Notifications within 24 hours of occurring or TriMet's knowledge, whichever is first: • Formal admission to the in-patient service of a hospital or clinic for medical treatment (including first aid) only if it occurs within 24-hrs of the event that caused the hospitalization (not including for observation or emergency room treatment) • Loss of an eye, if loss occurs within 24 hours of the event that caused the loss • Amputation or avulsion if it includes bone or cartilage loss and the loss occurs within 24 hours of the event that caused the loss
Notifications within 30 days of occurring: All point-of-operation injuries to employees resulting from the operation of mechanical power presses
Accident Investigation Reports Following Notification: The timeframe is unspecified. SAF follows a 60-day target. If more days are necessary, SAF communicates with OROSHA by phone or email until the final report is released
Other Required Reports: Annual Survey of Occupational Injuries & Illnesses (performed by Risk Management)

5.5.1 Reporting applicable to light rail transportation and maintenance operations

The process for reporting required events is outlined in *SOP-051 Event Notification Guidelines* and begins with OCC. After dispatching emergency services (e.g., police, fire, emergency medical) and response personnel to the scene, the controller starts collecting information to determine whether an event meets reporting requirements. If so, the controller notifies the active SDO through a phone line dedicated strictly to the purpose of ensuring direct, rapid connection. The SDOs are responsible for verifying the reporting status of the event and, upon confirming the event meets specified thresholds, notify the appropriate regulatory agencies.

Safety event notifications to ODOT and FTA are emailed to sso@odot.oregon.gov and TOC-01@dot.gov within specified times under the reporting thresholds listed below. Notifications include the following information and

are made within 2 hours of an event's occurrence (although notices required under the *SSO Program Standard Notification Matrix* are sent only to ODOT):

- Event type & Brief description of the event (including number of fatalities or injuries, if known);
- Name of our agency;
- Internal control number assigned to the event;
- Date, Time, and Location of the event; and,
- The affected MAX line.

In some cases, sufficient information to determine reportability is not attainable within two hours. Under these circumstances, the SDO will not notify until enough information is available to determine accurately. Should this happen, the SDO will explain why the notification and the other required information were not made earlier.

Table 16: Reporting to the Oregon Department of Transportation

ODOT State Safety Oversight
OCC & SAF, in partnership, identify reportable MAX accidents, and the active SDO sends email notification to ODOT at: sso@odot.oregon.gov. **Notifications within two hours of occurring:** **Reportable Accidents include:** • A fatality from injuries sustained at the scene within 30-days after the accident • Serious Injury (see *§ Definitions* for 'serious injury') • RTV collision resulting in fatal or serious injury, or substantial damage (see *§ Definitions* for 'substantial damage') • Collisions involving a RTV and another RTV • An evacuation for life safety reason • Derailment of an RTV at any location, any time, whatever the cause • A runaway train regardless of whether or not the operator is on board • Anytime FRA is notified of an accident as defined by *49 CFR 225.5* **ODOT SSO Program Standard Notification Matrix** *(2022, ver.3, Section 3.4):* • Damage to OCS/catenary that disrupts transit operations • Failure to comply with flagging or work zone restrictions; unauthorized train movement near or through a work zone • Unauthorized entry into any RTA facility, rail yard, maintenance facility or administration area. **Reports due within 72 hours of the event's occurrence:** Status updates of high-severity safety events that contain the following, minimum, information: • The involved employee(s) hours-of-service covering a period not less than 72 hours preceding the event • Number of injuries and fatalities resulting from the event • Causal & contributing factors, if determined; or a status update of the ongoing investigation • Any additional and available related documentation **Reports due within 60 days of occurrence:** • Final investigation reports of high-severity events **Other Required Reports:** • Monthly Rail Reports within 30 days following the end of the month reported • Hours of Service Violations within 30 days following the month in which they occur • Annual reports on or before February 15th following the year being reported

Table 17: Reporting to the Federal Transit Administration

FTA
While FTA has designated ODOT as its SSOA for Oregon, SAF still notifies FTA of any high-severity light-rail-related safety events. FTA is copied to email notifications sent to ODOT by email at the address TOC-01@dot.gov. **Items not reported to FTA:** • Status reports for reportable Accidents • ODOT SSO's Program Standard Notification Matrix listed incidents or occurrences

Nine locations on the Orange Line are subject to FRA's oversight (see Table 17 Areas under FRA Oversight). Telephonic notification for reportable safety events is made to FRA through the National Response Center (800-424-0201) within the applicable specified period (see Table 18). SDOs must use designated FRA forms. ODOT and FTA are notified as described at the start of *ASP § 4.5.2.* ODOT is copied to the final investigation report to FRA.

Table 18: Areas under the Federal Railroad Administration's Oversight

Orange Line Intersections Subject to FRA		
Track Crossing	**USDOT No.**	**Affected Railroad**
E of SE Water Avenue	938934E	Oregon Pacific
Shared Crossings	**USDOT No.**	**Shared with**
SE 8th Avenue	759730Y	Union Pacific
SE 11th Avenue	759733U	
SE 12th Avenue	759735H	
SE Mailwell Drive	749164N	Portland & Western
SE Harrison Street	749166C	
SE Monroe Street	749167J	
SE Washington Street	749168R	
SE 21st Avenue (at Adams Street)	749169X	

Table 19: Reporting to the Federal Railroad Administration

FRA (Orange Line, only)

See Transportation **SOP-230** for details.

TriMet notifies FRA through the National Response Center (800-424-0201) of an accident involving any of the following elements:

Within 2 hours of occurrence:

- At designated grade crossings: impact between a RTV and pedestrian, bicyclist, any type of motor vehicle, or other RTV
- Derailment
- Evacuation for life safety
- Any event within a crossing that results in fouling UPRR main line used by Amtrak trains. (*SOP-230, Appendix A.2*)
- Fatality, when death occurs at the scene or within 24-hrs thereafter if it involves:
  - A passenger,
  - An employee or contractor, or
  - Five or more persons
- Injury from an event at an Orange Line designated crossing involving:
  - Two or more MAX crew members or passengers requiring admission to a hospital, or five or more persons
  - An employee injury (or illness) meets the description detailed in *SOP 230, 3.0.3(2), bullet 2*

Within 4 hours of occurrence:

An accident in a shared crossing that results in $25,000, or more, in damage to a MAX train, light rail system, or non-rail property

Within 24 hours of occurrence:

- An event involving a MAX or Oregon Pacific Railroad train arising from a failure of the signal system at the MAX & OPRR crossing, that results in a more favorable aspect than intended, or other condition hazardous to train movement

Reports due within 15 days of event occurrence:

- Signal System False Proceed Report
- Grade Crossing Warning System Failure Report

Reports due within 30 days of event occurrence:

- Rail Equipment Accident Report
- Grade Crossing Accident or Incident Report

Other Required Reports:

- Monthly rail reports within 30 days following the end of the month reported (entered into database)
- Hours of Service Violations within 30 days following the month in which they occur (mailed)
- Annual reports on or before 30 days following the year being reported (entered into database or mailed)

Table 20: Reporting to the National Transportation Safety Board

NTSB
SAF will notify the NTSB through the National Response Center (800-424-0201) of a high severity light rail event involving any of the following. **Within 2 hours of occurrence:** • A passenger or employee fatality • Serious injury to two or more crew members or passengers requiring admission to a hospital • A fatality at a grade crossing **Within 4 hours of occurrence:** • Damage estimated at $150,000 or more in repairs (or replacement costs) to the railroad or non-railroad property • Damage of $25,000 or more to a passenger train including railroad or non-railroad property NTSB investigation of TriMet accidents are coordinated by the Exec. Director of Safety & Security. CAPs that may result from NTSB investigations are entered into the SMIS for tracking to closure.

5.5.2 Recording Events in the National Transit Database

Within 30 days after the reported month, SAF is responsible for entering bus and light rail events that meet Major and Non-Major reporting criteria as listed in the NTD Safety & Security Policy Manual.

5.6 Configuration and Change Management Plan

We are committed to an effective configuration and change management process to ensure the integrity of our rail transit assets and property, and to provide the safest operating environment possible for our customers, employees, and members of the public, and to comply with the requirements of *49 CFR Part 673.27(c)(1)* and , *Part 270.103(s)(1) &(2)(i)(ii)&(iii).*

The Configuration and Change Management Policy aims to ensure consistency, reliability, safety, and security in the delivery of TriMet rail transit services. The policy applies to any change to the rail operating transit system. It is applicable to as-built documentation, rail system performance requirements, rail system assets and property, transportation and maintenance documents, and safety and security documents. All TriMet employees, contractors, and third-party vendors involved in the development, implementation, and maintenance of TriMet rail services, assets, and property must adhere to the policy and the Configuration and Change Management Plan (CCMP).

The CCMP establishes guidelines and procedures for managing changes to rail operating transit system, performance requirements, transportation and maintenance documents, and safety and security documents. Changes to configuration items must follow the formalized processes outlined in the CCMP, including the submission, review, safety assessment, approval, implementation, and verification steps. All configuration items must be uniquely identified and documented in a configuration management repository. All changes to configuration items must be tracked and managed using a version control system. Each version shall be uniquely identified, and a change log maintained and recorded.

The Executive Director of TSAS is responsible for overseeing and implementing the policy and the CCMP. Managing and updating the CCMP is delegated to the director of operations engineering.

Audits of the CCMP shall be conducted by SAF to ensure compliance with this policy and CCMP processes and procedures.

If a proposed project change or change in the risk environment identified in a hazard assessment is expected to affect the system's safety, it is necessary to conduct additional safety analyses and document the results from the safety analyses before implementing the change. Even when a change is proposed to improve safety performance, further safety risk/hazard analysis is necessary to ensure that additional risk is not introduced based on the change. The level of analyses in SRM varies by the type of change.

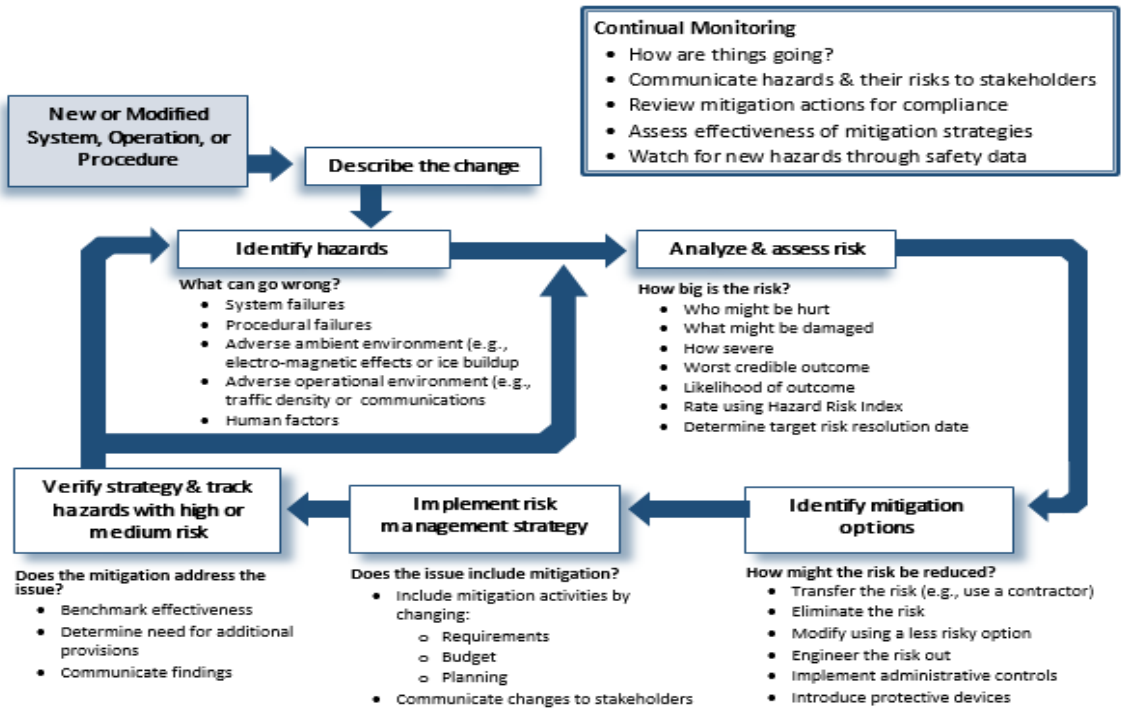
These managers and assistant managers inform their staff of changes as follows:

SOPs: Changes are disseminated to road and rail supervisors, operators, and OCC staff by email with a delivery receipt. Bus operators are notified of SOP changes by a Training Bulletin delivered in various manners, including paychecks, displays, and emails. Minor route changes are included in operator pouches. Rail operators are notified of changes by the "Trainline" bulletin. REM sends changes to employees by email. RRB updates are printed and given to road and rail supervisors, rail operators, REM, and MOW employees by their respective management teams. Finally, all SOPs are posted on TriNet and readily available to employees.

Training: For significant system changes (e.g., rail extensions) training is provided through training campaigns or in routinely scheduled classes. The contract includes configuration management requirements to ensure changes to the equipment or facility design (after design reviews) are adequately documented and approved. The configuration management process uses baseline management to ensure the technical baseline is defined and controlled throughout the contractual phase and that the products satisfy the technical and operational requirements derived from the system needs. Selected documentation, such as record drawings, manuals, procedures, and other documents, is formally designated and approved as part of the technical baseline and is initially under the control of E&C. At completion of each extension or phase, all documents related to the system's operations are turned over to bus and rail transportation and maintenance operations, as required.

Configuration Control Procedures: The configuration and change management processes for in-service rail systems involve three fundamental and interconnected activities: configuration identification, configuration control, and configuration status accounting. Additional information is available in the CCMP.

Figure 9: Overview of General Configuration & Change Management Process



As shown in Figure 9, above, the configuration and change evaluation process generally includes the listed steps and appropriate SMEs within our agency or external resources, as needed. The introduction of new technologies or systems to improve operations or safety performance must be prioritized and evaluated adequately, along with other traditional projects or procurements. The importance should influence the prioritization of these system changes or needs from a safety performance perspective. The process illustrated in Figure 9 determines what type of safety analysis is required.

5.7 System Safety Certification

Safety & Security Certification (SSC) encompasses a series of processes that collectively verify a project's safety and security readiness. As the operator of a public transit agency, TriMet self-certifies projects as ready for revenue service operations or occupancy as part of the agency's implementation of the SRM and Safety Assurance components of the *ASP*.

SSC is defined as the process applied to project development to ensure that all practical steps have been taken to optimize the operational safety and security of a project during engineering, design, and construction before the start of revenue service or occupancy.

Certification is applied to both new projects and projects that rehabilitate or modify the existing system(s). These include:

- Purchase of new rail vehicles, including high-rail vehicles;
- Purchase of new buses;
- Construction of new facilities (Rail & Bus);
- Modification of existing MOW systems;
- Modifications to SCADA software and LRVs when applicable (e.g., midlife overhauls, etc.).
- Additions and modifications to rail platforms and pedestrian crossings;
- New Rail lines and Extensions; and,
- BRT Projects and significant changes to our Bus system.

5.7.1 Certification Process

The SSC process begins in the project development or concept phase of a project and should account for SSC activities within project budgets and schedules.

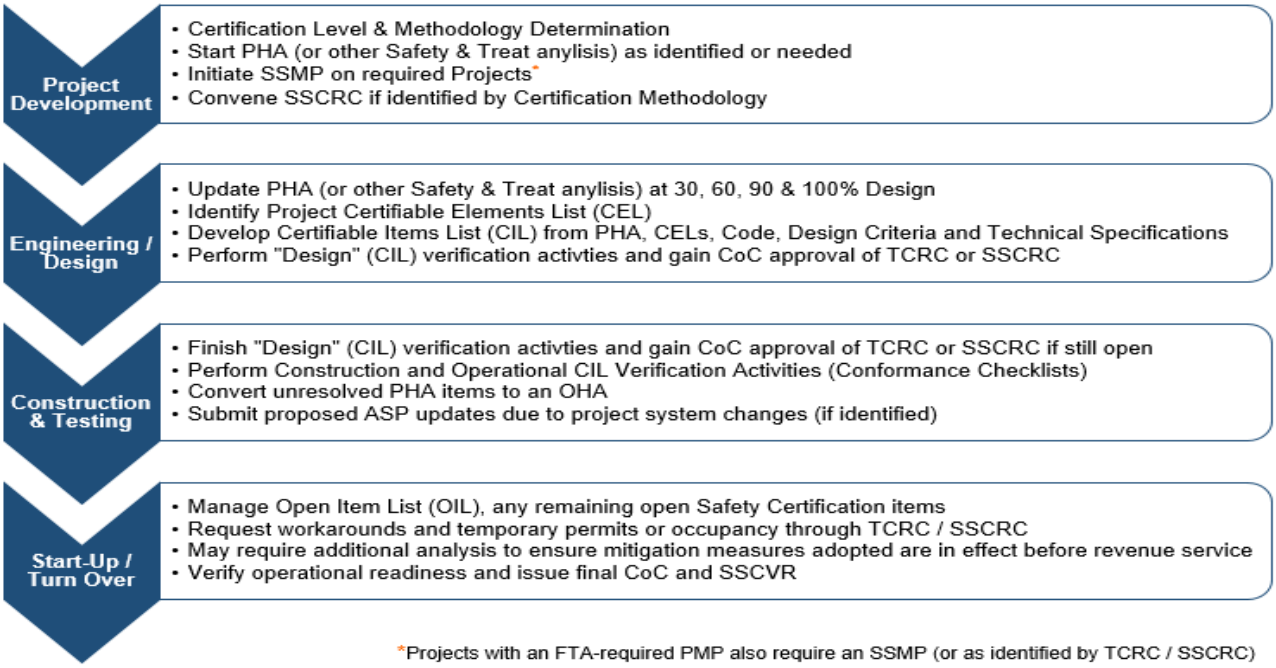
Broadly, the processes involve:

- Develop a project-specific Safety & Security Certification Plan (SSCP) when required;
- Identification of safety and security hazards and vulnerabilities inherent in a project;
- Development of controls, standards, and specifications to mitigate identified safety and security risks hazards & vulnerabilities to an acceptable level, as defined in an agency's safety plan; and,
- Verification that safety or security-related project elements comply with the applied requirements.

Table 21: System Safety Certification Goals & Objectives

Goals
• Verify that identified safety requirements have been met.
• Provide evidence that the new operational segments/phases are safe to use in revenue service.
Objectives
○ Facilities and equipment have been constructed, manufactured, inspected, installed, and tested, in accordance with safety requirements in the design criteria and contract documents. Operations and maintenance procedures and rules have been developed and implemented to ensure safe operations.
○ Training documents have been developed for the training of operating and emergency response personnel.
○ Transportation and maintenance personnel have been trained and qualified/certified. Emergency response agency personnel have been prepared to respond to emergency situations in or along the TriMet light rail right of way.
○ Safety-related system integration tests have been conducted.
○ All security-related issues have been addressed and resolved as specified in the SMP. Emergency management-related issues have been addressed and resolved as specified in the EMP.

Table 22: General Safety Certification Lifecycle



Hazard/risk and threat assessments may be required as part of the certification process to minimize any agency risk footprint from the project. These are typically done through a PHA, Threat and Vulnerability Assessment, or Operational Hazard Analysis. This is particularly true for instances involving federal dollars, which may trigger the need for additional oversight requirements and hazard control programs.

A PHA provides an early assessment of the hazards associated with a design or concept. When a PHA is identified as needed, it should begin in the project development phase and routinely no later than 30% design. The PHA also provides some of the inputs into the development of the projects' Conformance Checklists or Certifiable Items List (CIL).

Engineering and construction establish the design criteria based on codes, requirements, and industry best practices, which are also used to establish the projects' Conformance Checklists or CIL. Each project establishes and tracks the CIL and the SSC to completion with the oversight of the corresponding committee (i.e. TCRC or SSCRC).

The project writes an integrated test plan, which is implemented by designated staff and subject to the oversight of SAF and the corresponding committee. The project tracks open items to completion with SAF assistance. Some items may be left open with a mitigation plan that takes effect after revenue service or occupancy, which TCRC or SSCRC must approve.

Conduct final determination of project readiness and issue the SSC. When all required components are certified, a system-wide safety certificate and, in some instances, a safety verification report are issued.

5.7.2 Procurement Process

Procurement of new systems, such as facilities, equipment, buses, and LRVs, includes safety requirements in specifications, design reviews, testing, and configuration control. These procurements trigger consultation with the SAF to ensure basic system safety principles.

Consideration is given to the following safety requirements:

- Compatibility with our system safety features, design, and procedures;

- Design to minimize fatal or serious injury to personnel or severe damage to property in the event of a safety event;
- Incorporation of "fail-safe" principles when failures would cause a catastrophic event resulting in serious or fatal injury to personnel or damage or unintentional activation of equipment;
- Avoidance, elimination, or reduction of identified hazards by design change, safety devices, or selection of parts or materials;
- Composition of hydraulic fluids, lubricants, and other materials that provide optimum safety characteristics and fire-resistant properties;
- Location of equipment components so that access by personnel during operation, maintenance, repair, or adjustment activities shall not require exposure to hazards such as electrical shocks, burns, cutting edges, sharp points, or dangerous or toxic materials;
- Avoidance of undue exposure to physiological and psychological stresses, which might cause errors leading to a safety event;
- Provision of suitable warning and cautionary notes in instruction for operation, assembly, maintenance, and repair, and distinctive markings for personnel protection on hazardous components, equipment, and facilities;
- Contractors who provide systems, sub-systems, or equipment that affects safe transit service operations or passenger or employee safety are required to establish and maintain a system safety program (SSP);
- The contractor's approved SSP must define schedules, objectives and tasks, procedures, and data submittals for the activities that will be performed. E&C and Facilities Management Department approve their respective contractor's SSPs, with concurrence from SAF staff;
- All personal protective equipment (PPE) to be used by TriMet personnel is reviewed and approved by SAF following respiratory, hearing conservation, work at elevations, lockout/tagout, or other applicable safety rules or standards; and
- Before purchase, SAF, and Environmental Services review and approve chemicals or other potentially hazardous materials being considered for purchase and use.

5.8 Continual Improvement Processes

Our safety objective is to ensure our processes and operations maximize safety to the highest practicable level. This effort is undertaken by providing ongoing safety awareness promotion, encouraging employees to use our online hazard reporting system (including hazards or safety concerns affecting any department or group), participating in SRM, Safety Assurance, and Safety Promotion activities, incorporate improved safe work practices into our operations, and have open discussions about workplace safety.

We accomplish this through safety bulletins and posters, recruiting and training members of Committees, sponsoring safety campaigns in which employees may participate, performing inspections to identify hazards, and providing required and voluntary safety training.

Through the continual improvement process, we develop and carry out plans to address identified safety deficiencies by:

- Prioritizing identified and systemic hazards;
- Developing strategic initiatives to overcome known issues;
- Re-evaluating progress on improvement measures through our SMS; and,
- Periodic reviews and updates of our *ASP*.

5.9 Competency Management System

The CMS, incorporated into this document by reference, allows transportation and maintenance employees to demonstrate their knowledge, application, and adherence to policies, procedures, and rules. The CMS process establishes assessment standards that support management teams for conducting observation missions using reference documents for specific safety objectives, methods, and definitions. The CMS is a program for

mitigating risk while measuring compliance, assessing safety performance, elevating employee awareness and alertness, and giving immediate feedback and coaching to align employee decision-making and behaviors with our agency's safety rules, training, and guidance. Additionally, the CMS is a mechanism for ensuring employees who work in safety-sensitive positions are proficient before undertaking their work.

5.10 Field Supervision

Field Operations is responsible for the safe movement of revenue vehicles by deploying leads, road, and rail supervisors to conduct work in the field in conjunction with the Security Department and Customer Service Representatives. Field Operations is staffed to cover all hours of operation to ensure safe, reliable, and efficient transit services. Field Operations supervisory personnel perform various safety duties, including monitoring and coaching operators in safely handling revenue vehicles, employee fitness-for-duty checks, the first response to safety- and security-related events, collecting post-event evidence, and conducting initial investigations.

Transit Police operations, the Security Department deploys field personnel whose mission is to ensure public safety, fare enforcement, and community outreach to facilitate connecting vulnerable persons with social services and support.

See *ASP § 6.4* for safety oversight of capital construction projects.

6.0 SMS Component IV – Safety Promotion

Safety Promotion describes our employees' responsibilities to SMS and prepares them to adhere to policies, rules, and procedures. Safety Promotion also describes the training and certifications required to attain and enhance staff qualifications and competencies. This section also describes recurrent activities designed to maintain employee awareness about safety throughout our agency.

Promotion includes:

- Encouraging safety for employees, contractors, passengers, patrons, and the public.
- Strengthening community engagement in the transit system's safety by involving and educating community organizations and schools about transit safety.
- Promoting safety through training, campaigns, promotional contests, and other activities.

Training employees about hazard identification techniques, risk ranking, and using data increases the likelihood that hazards can be adequately defined and evaluated. This, in turn, enables management to plan better and direct resources to address hazards and ensure continual improvement.

6.1 Safety Training Program

TriMet's safety training efforts fall into three main types: initial, periodic, and retraining. Training mechanisms may include classroom, written and video communications, computer-based training (including revenue vehicle simulator), field exercises, or drills.

Employees directly connected with the operation or maintenance of revenue vehicles must undergo certification and recertification training. The employer departments' and appropriate Training group's roles includes:

- Ensuring employees have required training, certification, or recertification as it pertains to their discipline;
- Maintaining or ensuring maintenance of employees' training, certification, and recertification records;
- Making these records available to SAF or regulatory agency upon request within a reasonable period;
- Inform employees of elements of our SMS, safety programs that have relevance to their positions, and where they can view or obtain a copy of the *ASP*;

- Documenting training by their respective department practices through an electronic learning management database or hard copy files;
- Developing training that adequately communicates the specific hazards the affected employees may be exposed to; implementing hazard control methods; providing warnings and restrictions; developing safety rules and procedures; and practicing emergency procedures, including those related to response, communication, and evacuation;
- Distributing and displaying safety information such as bulletins, notices, rule changes, and posters in a manner that effectively communicates the information to employees;
- Educating their respective contractors and sub-contractors about their role and responsibility in achieving SMS objectives and targets; and,
- Monitoring and documenting compliance with the training through regular personnel performance observations and documentation inspections.

Employees covered under our *Hours of Service Policy & Procedures* (April 6, 2000) are subject to training as applicable to their work groups, if needed. Passing said courses is evidence that employees' are formally trained and certified. In addition, these employees must pass recertification regularly to retain their positions.

During 2016, in response to a rise in reported assaults, TriMet's Security Department introduced de-escalation training for employees who operate revenue vehicles. In 2018, Security introduced the Customer Safety Officer Program to support the safety of fare enforcement inspectors. Security developed a more robust training course, titled De-escalation-1, and delivered the training to personnel on both teams. In 2021, the training was extended to include the newly formed Safety Response Team and contracted security personnel. By 2022 the training was expanded to include De-escalation-2 and -3 courses to continue building employees' skill in de-escalating potentially hostile situations. Furthermore, the training was expanded agency-wide with emphasis on employees in customer-facing operations (e.g., in-field customer service employees, transportation, and maintenance). The training has been well received, and plans are underway to introduce online delivery to ensure standardized and sustainable training available to all employees whether required or voluntary.

WSC members are required to attend OSHA trainings as a part of their duties, specifically these online trainings:

- Hazard Identification;
- Safety event Investigation (to learn principles of investigations for use in evaluating events);
- Safety Committees and Meetings; and
- SMS Awareness.

6.2.1 Compliance with Local, State, and Federal Requirements

The *ASP* was developed and prepared in accordance with the documents noted in *ASP § 1.5*. Modifications to these documents may result in updates to the *ASP* as necessary to maintain conformance.

6.2.2 Public Transportation Safety Certification Training Program Requirements

TriMet has designated our CSO and staff within the Safety, Environmental Services, Internal Auditing, and Emergency Management departments to provide safety oversight. Staff in these departments must comply with training requirements under *49 CFR Part 672.13*. Within three years of designation to a safety oversight position, staff must complete the training and recertify every two years after that by taking a refresher class. TriMet has designated the TSI SMS Awareness class for its designated refresher training.

Training consists of the following classes delivered by the Transportation Safety Institute (TSI):

- Effectively Managing Transit Emergencies;
- Transit Rail System Safety and Transit Rail Incident Investigation; and,
- Three SMS classes: SMS-Awareness, -Safety Assurance, and -Principles for Transit

The CSO and staff within SAF, environmental services, and emergency management departments are required to earn a certificate in the Public Transportation Safety Certification Training Program for rail, and SAF staff are

required to earn the equivalent bus certification. Progress toward acquiring these certifications must begin within six months of assignment to one of these departments and completed within three years after that. Training consists of the first three bullets of the above list and the Transit System Security course.

Contracted personnel who conduct internal safety reviews or investigations on behalf of TriMet are also required to comply with the rail PTSCTP. When contracted personnel are tasked with an assignment, they must provide proof of compliance. This includes taking TriMet's designated PTSCTP refresher training, which is the Transportation Safety Institute's SMS Awareness course. Contractors' records are retained in their corresponding contract folders and logged in a Safety Assurance tracking sheet to provide ease for staff to ensure that the contractors' compliance remains valid.

6.3 TriMet Compliance Training & Certification Program

The SAF and LRHR provide employees with access to safety training. Employees exposed to chemicals or physical agents receive training in hazard communication, use and care of PPE, and hazards and safe handling methods of chemicals. Blood-borne pathogens training is provided for employees at risk of exposure to blood, bodily fluids, or other potentially infectious materials or are required to clean up bodily fluids. Additionally, safety information or safety "hot topics" are distributed to employees through bulletins, newsletters, and postings.

TDD is responsible for coordinating with SAF to formulate and refine training and ensure that required or appropriate safety-related information is integrated into the programs.

6.3.1 Operationally Related Safety Training

General safety training about equipment, machinery, PPE, protective safety systems (e.g., fall protection), and operating rules and procedures is provided. Operating personnel are given copies of SOPs and rules. The TSAS TDD formulates SOPs and regulations and submits them to TCRC for review and approval. Training programs are developed and coordinated by TDD to ensure that safety messaging remains at the forefront and includes sound safety principles and practices.

Designated employees in transportation and maintenance operations must pass examinations covering safety rules and procedures. Employees who fail examinations are given retraining to correct the knowledge deficit before resuming regular work. The preparation, administration, and maintenance of these examinations and related records are the responsibility of the employee's respective department.

OTS training is generally required for employees, contractors, and subcontractors working on TriMet's light rail system. The rail training department (RTD) provides initial and refresher training. The purpose of OTS training is to familiarize trainees with our rail system operating rules, practices, and standards and ensure the safe operation of the rail system and the safety of people working on or near the rail systems (as well as customers).

In some cases, persons may conduct work on our rail system without required safety training provided they are escorted by a TriMet-authorized individual who holds a current OTS certification consistent with FRA *Part 214.343*.

6.2.2 Revenue Vehicle Operator Training

New revenue vehicle operators (RVOs) attend their respective discipline's new operator training program. This program includes rules and procedures and hands-on vehicle operation. Each RVO is certified through written and practical testing to validate operational readiness and knowledge of rules and procedures.

RVOs attend periodic refresher training on the rules and procedures of their respective disciplines and recertify through written and practical testing.

Bus operators receive training from the bus training department (BTD), including defensive driving, rules about safe vehicle operation, pre-trip and pre-pullout inspections, emergency procedures, and injury and illness prevention. BTD also performs retraining following traffic events and occupational injuries. Operators must

receive eight hours of training per year under the transit training program. TDD conducts this training and maintains the records.

Rail operator training is mandatory when a new extension is opened or when a significant change is made to the operating system's functionality. TDD maintains training records.

6.3.4 Training for Field Supervisors & OCC Personnel

Rail supervisors receive training in light rail transportation operations, rules, standard and emergency operating procedures, incident command and emergency response, safety event investigations, customer assistance, and LRV troubleshooting. They are certified through both written and practical testing to validate their operational readiness and knowledge of the rules and procedures.

Road (Bus) supervisors receive training in bus transportation operations, rules, standard and emergency operating procedures, incident command and emergency response, safety event investigations, customer assistance, and bus troubleshooting. Supervisors are certified through written and practical testing to validate operational readiness and knowledge of the rules and procedures.

Rail controllers receive training about train movements, tunnel emergency systems procedures, emergency response management, and coordination of maintenance and construction activity within the light rail right-of-way (ROW). They are then certified through written and practical testing to validate their knowledge and expertise in responding to a wide range of operating situations and problems.

Bus dispatchers receive training about bus movements, emergency procedures, and emergency response management. They are then certified through written and practical testing to validate their knowledge and expertise in responding to a wide range of operating situations and problems.

Rail supervisors and **controllers** receive refresher instruction and are recertified annually through written and field examinations. Additionally, rail supervisors are required to take a monthly certification trip. Controllers and supervisors attend annual recertification for rail operators, and rail supervisors retain their operator certifications.

Road supervisors and **dispatchers** receive refresher training recertification annually through written and field examinations. Additionally, road supervisors must do a monthly certification trip to retain their operator certifications. Dispatchers and road supervisors attend bus operators' annual recertification.

Staff training records are maintained by TDD trainers.

6.3.5 Training for Maintenance Personnel

BMT has formal training programs for employees involved in bus maintenance activities. The heavy duty bus mechanic apprenticeship program is the state-sponsored program through the State of Oregon, Bureau of Labor and Industries – Apprenticeship and Training Division - Oregon State Apprenticeship and Training Council (OSATC). The employees who work on buses are direct hire bus mechanics (external hires) and the certified bus mechanic journeyworkers and apprentices (internal hires) who completed the state-sponsored program. The OSATC maintains the apprentice status in the Oregon apprenticeship tracking system (OATS), a web application required to be used by registered apprenticeship programs to document all actions and activities throughout the life-cycles of apprentices, training agents, and committee members.

BMT maintains curriculum, examinations, and on-the-job training of the apprentices and journeyworkers' training records. Maintenance requirements, methods, and procedures are described in manuals, handbooks, and other documentation utilized by the BMT personnel training and certification. The program contains classes, lesson plans, training materials, knowledge testing, and field training or on the job training along with the use of PPE, emergency equipment, and safety instructions.

All safety training is documented. TriMet utilizes safety training programs to inform employees about hazards associated with their jobs and the appropriate methods for controlling these hazards.

Each applicable employee will recertify in the following training with written and practical testing:

- Cardiopulmonary resuscitation (CPR) and automated electronic defibrillator (AED) recertification training is offered annually;
- First Aid, recertification training offered at least every three years; and,
- Lockout/Tagout, recertification training conducted annually to reflect the addition of the battery electric bus fleet

REM has formal training programs for employees involved in light rail vehicle (LVR) maintenance activities. The REM training maintains curriculum, examinations, and field training of the LRV technician trainee's training records. Maintenance requirements, methods, and procedures are described in manuals, handbooks, and other documentation utilized by the senior REM trainers. The program contains classes, lesson plans, training materials, knowledge testing, and field training along with the use of PPE, emergency equipment, and safety instructions.

REM personnel who operate LRVs, high-rail equipment, heavy equipment, or other specialized vehicles or equipment are certified by written and practical testing documenting the employee's knowledge of safety and operating procedures and skill in proper and safe operation and application of methods.

REM employees who are trained and authorized to use the following mobile equipment or vehicles must recertify in the proper and safe use, including written and practical testing, by the specified timeframe:

- High-rail and re-railing annually;
- Power industrial trucks every three years;
- REM LRV operation every three years.

REM personnel working on energized electrical equipment are trained and certified in lockout/tagout, first aid, CPR, and AED.

Each applicable employee will recertify in the following training with written and practical testing:

- CPR/AED recertification training offered annually
- First Aid, recertification training offered at least every three years
- Lockout/Tagout, recertification training conducted annually
- OTS Training, refresher required annually.

Required recertification is completed every three years or annually, as required, but no later than 30 days from the employee's anniversary training date. Maintenance trainers under TDD retain all paperwork.

MOW has manuals, handbooks, and other documentation developed for the training and certification of personnel describe department requirements, methods, and procedures. The training program includes the use of PPE, emergency equipment, OTS, lockout/tagout, and safety instruction**.**

MOW includes the following job positions:

- Substation technicians;
- Overhead catenary system technicians;
- Track maintenance technicians; and,
- Signals technicians.

Each functional area has a training program consisting of written and practical testing to document the employee's knowledge and skill of safety and safe operating procedures. MOW trainers maintain the records.

Facility Maintenance (FM) employees are trained in PPE, emergency equipment, lockout/tagout, and power industrial trucks. Those authorized to operate powered industrial trucks must recertify for the proper and safe use of the equipment every three years, including written and practical testing.

All FM plant mechanics are licensed limited maintenance electricians, compliant with state training requirements.

6.3.6 Compliance Assessments

In addition to CMS, other methods are used to assess compliance with training and certification requirements:

- *Bus and rail operators are assessed through "Observation Rides" conducted by BTD or RTD supervisors*. Before the ride, a training supervisor reviews the operator's files and looks for documented issues or complaints. Once the ride is completed, any observations or concerns are discussed with the affected operator. Follow-up rides may be conducted if needed. Once the ride is completed, observations or concerns are discussed with the operator, documented, and kept electronically by BTD or RTD, respectively;
- *Rail and road supervisor* reports are reviewed to assure compliance with training and certification requirements; conversations with the OCC are recorded and may be reviewed by management;
- *MOW employees* are assessed by their supervisors. These "spot checks" are conducted as frequently as deemed necessary. In addition, all reports are entered into an electronic tracking system and reviewed by management;
- *REM* employees are monitored by assistant managers for compliance with established procedures, rules, regulations, and industry standards (e.g., APTA). This is done by reviewing work tickets or related documents; direct visual supervision of work practices in the shop; and communication relating to individual work performance with training staff, fellow supervisors, and management;
- *Facilities Management* for compliance with established procedures, rules, regulations, and industry standards (e.g., APTA). This is done by reviewing work tickets or related documents; direct visual supervision of work practices in the shop; and communication relating to individual work performance with training staff, fellow supervisors, and management, and
- *Contractors* are subject to SAF oversight to ensure compliance with applicable rules and requirements. Oversight may include reviewing work plans, site visits, inspections, or audits.

6.4 Construction Safety

Construction safety is administered in accordance with the construction safety program (CSP), contract specifications, and applicable local, state, and federal safety requirements, such as OR-OSHA regulations. Program details are included in our CSP manual, which outlines the minimum requirements for contractors performing work within our transit system.

SAF reviews each contractor's safety plan and supporting documentation for regulatory and TriMet safety specification compliance, with advice from E&C. SAF reviews and approves contractor safety plans for minor projects, including pre-work JHAs, before initiating work on TriMet properties. Audits of the contractors are conducted to assure compliance with federal, state, and local laws and TriMet's requirements. To mitigate risks, contractors must complete safety event investigation reports and CAPs.

Personnel working near the light rail alignment are required to attend OTS training provided by TDD trainers.

6.5 Employee & Contractor Safety

An important aspect of safety compliance falls under Occupational Safety and Health rules, regulations, guidance, and initiatives. Staff must use appropriate PPE when or where required. PPE used by employees is evaluated and approved by SAF prior to procurement. Employees required to wear safety work boots may purchase them using a uniform allowance or boot reimbursement process.

SAF provides management teams, employees, and contractors with technical safety expertise to ensure an understanding of applicable local, state, and federal safety regulations.

A contractor performing work at TriMet who brings chemicals onto our property is required to participate in a contractor environmental briefing. The contractor must also provide TriMet with a copy of the chemical SDS for each chemical brought onsite. The contractor must also submit a written work plan with employee personal protection procedures for handling chemicals associated with the work.

Contractor personnel who demonstrate a lack of understanding of applicable rules and procedures may be removed from the worksite, and TriMet may require additional safety training. Contractor personnel who work in the ROW during rail traffic are required to attend OTS training; refer to *ASP § 6.3.1* for details.

Contractor personnel who work in TriMet environments with unique or unusual occupational hazards are provided familiarization training to ensure awareness of hazardous conditions and how to protect themselves.

6.6 Safety Communication & Outreach

We understand the importance of effective communication for building and maintaining a robust safety culture. Training is one example of communication. The methods described below are other ways our agency communicates safety performance information with employees. In addition to regular safety messages, information on hazards and safety risks, safety actions relevant to employees' roles and responsibilities, and the submittals to our employee hazard reporting system, we continually communicate safety performance information throughout our organization. We convey information on hazards, safety risks, and safety actions taken in response to employee concerns at committees through their meeting minutes and safety promotion activities.

The marketing and customer service department (MCSD) publishes information regarding our programs, operations, and events. MCSD develops and conducts various safety communications to committees and the communities we serve concerning safety awareness programs and key safety information. Some of these are public-facing initiatives provided to local schools, communities, citizen groups, media, or patrons. These programs and packages highlight risks and the need for safe behavior on or around our equipment and facilities.

In addition, on-street customer service staff (OSCS, which is comprised of field representatives, ride guides, and volunteers) provides one-on-one safety education to customers using TriMet's buses and trains. During special events and service disruptions, OSCS staff are present to monitor conditions and encourage customers to behave safely around buses and trains.

During winter storms, OSCS reports potential safety issues (e.g., icy platforms) through OCC and provides safety tips to customers. Internal messaging of safety tips is broadcast by flat screen monitors in employee break rooms at our operations facilities. These messages may contain information about any number of safety-themed items. MCSD may conduct outreach or participate as inspection team members at the request of SAF.

6.6.1 Environmental Management Program

The environmental services department (ESD) is responsible for ensuring that TriMet meets all applicable federal, state, and local environmental obligations. ESD manages environmental permits and records, conducts routine inspections of maintenance facilities, maintains and upkeeps our environmental infrastructure, and provides employee training. Hence, everyone at TriMet understands their role in meeting compliance obligations and preventing pollution.

6.6.2 Industrial Hygiene Program

SAF conducts industrial hygiene surveys, including air quality, noise levels, and hazardous materials (e.g., wastes), to evaluate the degree of employee, customer, or environmental exposure or impact of chemical and physical agents encountered in the work environment, including offices. The basis for conducting surveys is to evaluate work processes, reports of injury and occupational disease, or required regulations. Survey results determine engineering and administrative controls and the need for PPE. Industrial hygiene reports or surveys are submitted to all affected department directors, managers, and employees and retained by SAF.

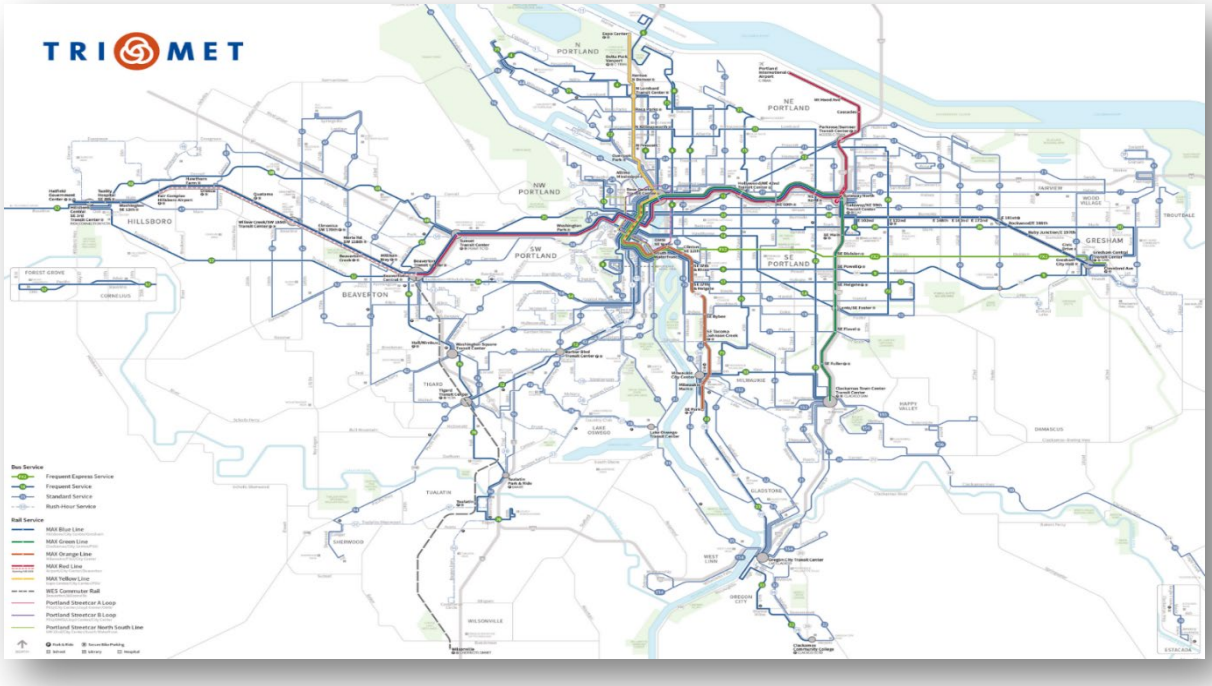
7.0 Reference: TriMet System Description

TriMet is responsible for providing safe, reliable, and efficient bus transit and paratransit service in the urbanized areas of Multnomah, Washington, and Clackamas counties, and LRT service through the cities of Gresham, Portland, Beaverton, Milwaukie, Clackamas County and Hillsboro, Oregon. Service is also provided to the Portland International Airport.

Our commuter rail provides service between Wilsonville and Beaverton, utilizing an existing freight trackway.

The following is a brief history of light rail system development, a summary of the modes of service, and an overview of TriMet facilities and vehicles.

Figure 10: TriMet System Map



7.1 Light Rail Transit History & System Description

March of 1982: Construction began on a 15-mile light rail system between the Cities of Portland and Gresham, Multnomah County. The segment, Blue Line, opened for revenue service in September 1986.

September 1997: The first part of an 18-mile extension of the Blue Line west from downtown Portland opened for revenue service. This also marked the introduction of low-floor LRVs in North America.

September 1998: The remaining segment of the westward expansion opened for revenue service, connecting Portland to the cities of Beaverton and Hillsboro in Washington County. Along with this opening, bus transit service was greatly expanded within the County.

September 2001: The Airport extension, Red Line, opened, providing service from the Portland International Airport to downtown Portland.

May 2004: The Interstate Avenue extension (Yellow Line) opened, connecting the Rose Quarter Transit Center to the Portland Exposition Center.

September 2009: The Interstate 205 extension (Green Line) opened, connecting downtown Portland to the Clackamas Town Center shopping mall in Clackamas County via Gateway Transit Center.

September 2015: The Milwaukie extension (Orange Line) opened, connecting downtown Portland to the City of Milwaukie in Clackamas County.

September 2021: The Better Red project was initiated to extend the Red Line from downtown Portland to Fair Complex Hillsboro (serving ten more stations) and is scheduled for completion in the summer of 2024.

7.2 Light Rail Transportation Operations

Transit service is provided seven days a week from approximately 4:00 a.m. to about 2:00 a.m. The service design is based on a 15-minute headway throughout the light rail system. At 10:30 p.m., the 15-minute headway transitions to a 30-minute headway.

Rail transportation operations employs two-car consists on all lines, all days. The current ridership for all lines is about 387,690 boardings weekly. The RRB and SOPs are the references for rail transportation and maintenance operations and provide rail operators, maintenance personnel, and other affected employees with specific instructions to follow in an emergency. These documents are revised as needed.

7.3 Alignment & Routes

TriMet's light rail system has expanded over the years and is comprised of several service lines. The light rail system has over 60.2 miles of revenue track operating through the cities of Gresham, Portland, Beaverton, Hillsboro, Milwaukie, and unincorporated Clackamas County, Oregon.

The service lines are referred to by color and are coordinated with TriMet's bus service. Along the lines, transit centers, park-and-ride lots, and quick-drop parking spaces are provided, as well as support services.

Portland's downtown central business district (CBD) is the center of the system. All MAX lines have service stations in the CBD. The Yellow, Green, and Orange Lines operate on 5th and 6th Avenues, and the Red and Blue Lines operate on Morrison and Yamhill Streets.

Below are brief descriptions of each line.

BLUE LINE

The Blue Line began revenue service in 1986 and is the oldest and longest line in the MAX system:

- Spans 33 miles: from Cleveland Avenue, Gresham, through downtown Portland's CBD, and continuing west to Hatfield Gov. Center, Hillsboro, before returning.
- Serves 45 stations.
- Several stations include Park and Ride lots.
- Includes yard leads connecting Ruby Junction and Elmonica Maintenance Rail Operations Facilities to the system.

RED LINE

The Red Line began revenue service in September 2001.

- Initially, spanning the Portland International Airport 5.5 miles south to the Gateway Transit Center;
- Later, it was integrated with the Blue Line to continue through downtown Portland (east to west) and ending at Beaverton Transit Center;

- In 2021, construction began to extend the Line's turnback location from Beaverton Transit Center to the Fair Complex\Hillsboro Airport MAX Station. The project also included adding a second track in areas along the initial 5.5-mile span that previously was only a single track.
- At completion (estimated for fall of 2024), it will serve 37 stations and have several park-and-ride lots.

YELLOW LINE

The Yellow Line began revenue service in May 2004 and extended service from Rose Quarter Transit Center north 5.8 miles to the Portland Expo Center.

- The Yellow Line route starts at Portland EXPO Center and serves ten passenger stations along its route before crossing the Steel Bridge and continuing (north to south) through downtown Portland's CBD, with the turn back located at Jackson Street Terminus adjacent to Portland State University; and,
- Has two Park and Rides on its extension.

GREEN LINE

The Green Line began revenue service in September 2009.

- Approximately 8.6 miles of track were added for this project;
- The Line starts at Clackamas Town Center, through Gateway, shares track with the Blue and Red Lines, and then separates at the west end of the steel bridge. There, it begins sharing track with the Yellow Line to continue (north to south) through the CBD and turnback at the Jackson Street Terminus; and,
- The Line includes eight stations and five parking facilities.

ORANGE LINE

The Orange Line opened for revenue service in September 2015:

- Is about 7.3 miles extending from the CBD south to Park Avenue MAX Station in Milwaukie, Oregon;
- Added ten new stations, approximately 675 park-and-ride spaces, and an exclusive transit way between SW 1st Avenue and SE 8th Avenue as part of the new Tilikum Bridge across the Willamette River;
- The Line crosses one track owned by Oregon Pacific Railroad and shares:
    - Three intersection crossings with Union Pacific Railroad; and
    - Five intersection crossings with Portland & Western Railroad.

7.4 Station Platforms

Stations generally consist of a platform or sidewalk extension, ticket vending and validating machines, shelter with bench seating, and electronic service information displays. Platform lengths are limited to approximately 200 feet, accommodating one, two-car consist. All boarding heights are low-level, approximately 10 inches above the top-of-rail. Well-lit, minimally obstructed platforms allow good visibility for passengers and TriMet personnel. All platforms are equipped with closed-circuit television cameras that are monitored remotely. Stations located on roadways have bollards and fences to prevent vehicular traffic from entering platforms and reduce passengers' tendency to cross tracks in non-designated locations.

7.5 Transportation & Maintenance Operations Facilities

7.5.1 Operations Headquarters

Our Transit Operations Headquarters facility is the center of transportation and maintenance operations for the light rail and fixed bus systems. The facility is located in Portland, Oregon. The building houses field operations for bus and rail transportation operations, the OCC for bus and rail transportation operations, bus transportation operations staff, and a report area for bus operators. The campus includes a separate building for bus maintenance.

The OCC is responsible for monitoring and controlling the bus and rail systems' transportation operations and handling emergencies that might arise. It is staffed continuously 24 hours a day, seven days a week. Communication equipment allows OCC staff to speak directly with revenue vehicle operators and maintenance personnel, as well as police, fire, and emergency medical services personnel.

OCC performs the following functions:

- Write and distribute train orders or special instructions. Monitor train movement and service schedules;
- Monitor and acknowledge signals, traction and electrical power, fare collection, communications, and elevator system status and alarms;
- Communicate 700 MHz radio with revenue vehicle operators and key staff to provide advance warning and coordinate action with other agencies. Provide transit text messages via reader boards;
- Provide telephone communications with key staff in yards, crew rooms, and tunnel sections. Initiate route requests to the light rail signal system; and,
- Initiate requests to open direct circuit feeder breakers.

Additionally, the OCC can supervise and control the following functions within the Robertson Tunnel:

- Initiate operation of any of nineteen pre-defined ventilation operating modes as dictated by train direction of travel, fire zone, and passenger evacuation direction planned;
- Transmit requests to close specific fire doors on the Washington Park Station platform, alter the elevator control mode, and open fire protection standpipe flow valves;
- Provide emergency communications with emergency responders via telephone;
- Monitor tunnel emergency control panels in the Washington Park Station operations room; and,
- Provide public announcements in the Washington Park Station.

7.5.2 Ruby Junction Rail Operations Facility

The Ruby Junction campus has five buildings and two LRV storage, inventory, and equipment yards:

- The north building houses REM, vehicle engineering, light rail transportation operations, and rail operations training. The facility has service pits, cranes, and other equipment necessary to maintain LRVs. Catwalks allow access to the roof of the vehicles. The building includes offices and classrooms;
- The south building is mainly occupied by MOW's signals, overhead contact system, track, and substation departments. REM staff also works in the facility for metal work, body shop, and paint booth. The facility has cranes and other equipment necessary for servicing and maintaining LRVs;
- The west area (located on the west side of NE Eleven Mile Road, includes three buildings, an LRV yard, a wash bay for LRVs, service vehicle storage, and a one-story, two-bay repair maintenance facility;
- Rail storage yards:
    - The primary and largest yard is located east of the buildings on the road's east side. The yard's north end provides access to the mainline. Tracks extend around the buildings, providing access to repair bays. A test track is located on the east side of the yard for testing LRVs after repair to ensure brake and electrical systems are fully functional before returning to service and
    - A track crossing over NE Eleven Mile Road connects the east campus to the west campus, enabling the movement of LRVs to the washing bay and a second smaller storage yard. A test track on the east side of the Ruby Junction yard allows for testing LRVs' brake and electrical systems following repairs and before returning to service.

7.5.3 Elmonica Rail Operations Facility

The Elmonica Operations Facility is mixed-use with offices and an LRV maintenance area. The building houses:

- A report facility for train operators, MOW, and REM staff;
- The maintenance area consists of bays, in-floor vehicle jacks, storage tracks, a blowdown pit, and a wash bay. Catwalks provide safe access to the roof of the vehicles;
- An automatic fire sprinkler system covers the building;

- The yard is located on the building's north side. Tracks run along all sides, providing access to:
  - The mainline at two points at the southeast and southwest sides of the facility; and,
  - The east and west ends of the maintenance shop and washing station,

7.6 Track

There are three general types of track and special appurtenances utilized on the TriMet system:

- *Ballasted Track* is comprised of 115 lb. AREA rail installed on either timber or concrete ties placed in a ballast track bed. Drainage includes underdrains or trackside ditches. The rail is fastened to the ties with track spikes or L-spring clips (aka, Pandrol clips). This type of track is utilized on the exclusive ROW portions of the mainline and is typically used to construct storage tracks at the maintenance facilities;
- *Direct Fixation Track* consists of 115 lb. AREA rail fastened directly to cast-in-place track plinths. The rail rests on resilient plates, called direct fixation fasteners, attached to the plinths through bolts. This track type is used in selected areas of at-grade exclusive ROW and viaduct structures. Track in TriMet's Robertson Tunnel is a variation of direct fixation track that utilizes precast concrete blocks instead of direct fixation fasteners; and,
- *Embedded Track* consisting of 115-lb AREA rail or Ri-59 girder rail. The rail is encased in a rubber boot or elastomeric rail support material and embedded in concrete. This track type is primarily utilized where "in-street" running occurs.

Crossover and pocket tracks are located at various locations to permit trains to turn back at both system ends and selected mid-line locations. Terminal and pocket tracks are used to hold spare vehicles during special events and temporarily store malfunctioning trains.

7.7 Tunnel

The Robertson Tunnel is an approximately three-mile long twin-bore design. Construction began in August, 1993, and was substantially completed early in 1997. A total of 18 cross-passages, located an average of 750 feet apart, connect both bores within the tunnel proper. Each cross-passage is protected by a pair of double-egress one-and-one-half hour fire-rated doors. The tunnel's east end is a 550' cut-and-cover box structure that carries SW Jefferson Street over the trackway with a single double-door opening directly to the adjoining track.

The tunnel features the deepest operating passenger station in North America, at an average of 260 feet below the surface. Emergency lighting aids egress from the station and tunnel during a loss of utility power. The tunnel receives two high-voltage feeds from the electrical utility to minimize the impact of a loss of commercial power to the tunnel. There is a motor generator at Washington Park that can also be operated in the event both of the commercial feeds to the tunnel are lost. The tunnel is also equipped with a bi-directional amplifier system to support TriMet and City of Portland radio operations within the tunnel.

7.7.1 Operations Room

The operations room is a control center located at Washington Park. TriMet and emergency response personnel staff the room during emergencies or high-use periods at the station. The fire & life safety systems are all designed to be operated remotely, which can occur at any TriMet location equipped with the rail central control system. If network communication is lost between OCC and the tunnel Washington Park, manual operations of the fire/life safety systems can be performed from the operations room. A rail supervisor is initially dispatched to the operations room, and remains onsite until a qualified member of the OCC staff relieves the supervisor, or communications are restored, whichever occurs first.

7.7.2 Stations

The Washington Park Station consists of two platforms connected by diagonal cross-passages and elevator lobbies at the east and west ends. The areas and passages are equipped with fire-rated doors that OCC controls remotely, operate as part of pre-programmed emergency response modes. OCC can also manually

operate the fire-rated doors as needed. During an emergency, the doors to an affected platform may be closed, isolating the unaffected platform from smoke and heat.

Two, 31-foot diameter, vertical shafts connect the platform level with the head house structure at the surface. Each shaft includes two high-speed elevators, station air ducts, tunnel ventilation fan ducts, and exit stairs. The head house structure consists of elevator entrances, fan rooms, electrical rooms, and an operations room.

7.7.3 West Vent Shaft

About one mile west of Washington Park is another 31-foot diameter vertical shaft with ventilation equipment and a traction power substation. Emergency access to the track level is possible via a rebar ladder accessible from the fan room. At track level, there is a utility pit and a vent plenum similar to that at Washington Park.

7.7.4 Standpipe System

The standpipe system has to fill points at the Washington Park Station head house and the west vent shaft building, which can be filled locally or remotely from the Washington Park operation room or the OCC.

7.7.5 Tunnel Ventilation

The goal of the tunnel and station ventilation system in a fire or smoke emergency is to:

- Assist in the safe evacuation of passengers from a disabled train and provide access to emergency services by controlling the movement of smoke and heat;
- Supply fresh air for evacuation with sufficient flow to prevent backflow of hot, smoke-laden air; and,
- Facilitate purging of smoke after a fire or smoke event.

7.8 Light Rail Vehicle Fleets

TriMet's LRV fleet consists of self-propelled, six-axle, articulated, electrically powered cars. All cars are equipped for bi-directional operation, although the Type 4 and Type 5 LRVs have one cab for operating in revenue service.

Table 23: Description of Light Rail Vehicle Fleets

Series	Description	Vehicle ID No.s From	To	Qty.	Mfr.	Purchase Year(s)
Type 1	High Floor	101	126	22*	Bombardier	1983 - 1986
Type 2	Low Floor	201	252	52	Siemens	1995 - 1999
Type 3	Low Floor	301	327	27	Siemens	2002 - 2004
Type 4	Low Floor	401	422	22	Siemens	2008 - 2009
Type 5	Low Floor	521	538	18	Siemens	2015
Type 6	Low Floor	601	630	30	Siemens	2023 - 2024

* Reflects the remaining of 26 purchased. Four have been decommissioned.

LRVs are capable of multiple-unit operation, using any combination of cars, except for the Type 4s and Type 5s, of which only two may be coupled. Revenue service, however, is limited to one, two-car consist due to the short blocks in Portland's CBD. The vehicles are powered through an OCS, which supplies 750 volts of direct current electricity. The LRVs may be operated to a speed of up to 55 miles per hour.

The light rail cars are designed to fail-safely. Failure of a safety critical component automatically stops the train or causes it to run at a restricted speed:

- In the event the operator fails to regain control of the LRV, a fail-safe feature activates and an irretrievable brake application is initiated; and,

- LRV design prevents movement if a side door isn't closed and latched. LRVs are also equipped with emergency release levers, enabling passengers to self-evacuate if needed.

Cars are constructed of fire-resistant materials and each cab houses a fire extinguisher. If traction power is lost, emergency battery power provides communication, head and tail lights, and emergency car lighting. The onboard public address system allows the operator to communicate emergency instructions or other information to passengers inside or outside the vehicle.

8.0 Reference: Definitions

Acceptable Risk means a tolerable level of risk to people or property.

Accountable Executive means the person who has ultimate responsibility for carrying out TriMet's *ASP* and TAM Plan and control or direction over the human and capital resources needed to develop and maintain both Plans under *49 USC §5329(d)* and *49 USC 5326*.

Administrator means the Federal Transit Administrator or the Administrator's designee.

As low as reasonably practicable is synonymous with: to the maximum extent practicable.

Assault on a transit worker means a circumstance in which an individual knowingly, without lawful authority or permission, and with intent to endanger the safety of any individual, or with a reckless disregard for the safety of human life, interferes with, disables, or incapacitates a transit worker while the transit worker is performing the duties of the transit worker.

Change Management means managing changes in processes, plans, and baselines by identifying and documenting the change(s), reviewing, analyzing, and deciding on the change request, and ensuring the request is approved, implemented, and communicated.

Close call means a narrowly avoided safety event (e.g., narrowly avoiding a collision).

Configuration and Change Management means managing change in specifications by identifying, recording, and preparing a report of configurable items; ensuring a request to reconfigure a system is approved, implemented, and communicated, and conducting a review to verify that all configurations meet requirements.

Corrective action plan is a plan to mitigate or eliminate hazards or change a document or process as defined under *OAR 741-060-0020(6)*.

Chief Safety Officer is the adequately trained person responsible for safety and reports directly to the AE.

Emergency means a serious, unexpected, and often dangerous situation requiring immediate action.

Employee Hazard Reporting System is synonymous with FTA's phrase employee safety reporting system.

Hazard means an actual or potential condition that may cause injury, illness, or death; damage to or loss of services, facilities, equipment, rolling stock, or other transit system infrastructure or environmental damage.

Hazard Analysis is the formal activity of analyzing the potential consequences of hazards that may exist in a workplace. Hazard Analysis Worksheets are used to document hazards and their consequences, assign hazard ratings and mitigations, and support justification for mitigation efforts.

Hazard Identification is the process of identifying and evaluating whether a situation, item, or condition has the potential to cause harm. Table 4 lists hazard identification sources.

Hazard Management focuses on identifying, evaluating, and mitigating hazards; and reporting hazard management activity to TriMet leadership. Hazard management often assumes systems are sufficient to prevent hazards and, therefore, focuses on addressing single deficiencies or failures in system performance that result in safety events. Hazard management typically uses corrective actions to prevent future failures.

Imminent Danger is a situation or condition in which it can be reasonably concluded that someone is about to be seriously or fatally injured (synonymous with *immediately dangerous to life or health*). There must be a threat of death or serious physical harm (e.g., damage so severe a body part can't be used or used well), and the threat must be immediate. In terms of a health hazard, there must be reasonable expectation a toxic substance or other health hazard is present, and exposure will shorten life or cause a substantial reduction in physical or mental efficiency (the resulting degradation in health isn't required to manifest immediately).

Incident means an event that involves any of the following: a non-serious personal injury, one or more injuries requiring medical transport, or damage to facilities, equipment, rolling stock, or infrastructure that disrupts a transit agency's transit service operations. It is also an event in which no injury or damage occurs, but injury or damage could have occurred; in other words, a close call.

Incorporated by reference means declaring that the entire text of a reference document is included in another document without reprinting the text of the cited document.

Injury means any harm to persons requiring immediate medical attention away from the scene.

Investigation is the process of determining the causal and contributing factors of a safety event or hazard to mitigate the risk or prevent recurrence.

Joint labor-management process means a formal approach to discuss topics affecting transit workers and the public transportation system.

Just safety culture, A emphasizes that mistakes are generally a product of faulty organizational culture not solely brought about by persons involved. A just culture regards honest human mistakes as opportunities to learn and promote accountability and improvement. Willful misconduct, however, is not part of a just safety culture and may lead to disciplinary action, including termination of employment (even if no harm was caused).

Key performance indicator is a quantifiable measure to evaluate success meeting performance objectives.

Key Staff means staff, groups of staff, or committees designated to support the Accountable Executive, Chief Safety Officer, Safety Committee in developing, implementing, and operating our SMS.

Mishap is a generic term for an adverse or unfortunate event.

Moving Ahead for Progress in the 21st Century granted the FTA authority to establish and enforce a comprehensive framework to oversee public transit safety throughout the United States regarding buses, ferries, heavy rail, light rail, and streetcars. The law, in part, requires the FTA to update the SSO program to ensure transit systems meet safety requirements.

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

Occurrence is the lowest-level Event type in which no personal injury, damage to facilities, equipment, rolling stock, or infrastructure occurs, nor does the event disrupt transit service operations.

On Track Safety is synonymous with Roadway Worker Protection.

Operator means a provider of public transportation as defined under *49 USC 5302(14)*.

Performance Measures are expressions based on a quantifiable indicator of performance or condition that are used to establish targets and assess progress in meeting established targets.

Performance Target is a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a period required by the FTA.

Potential consequence means the possible effect of a hazard.

Public Transportation Agency Safety Plan is the documented comprehensive *ASP* for a transit agency, as required by *49 USC §5329* and *Part 673*.

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 FRA or any such system in engineering or construction.

Rail Transit Agency means any entity that provides services on an RFGPTS.

Railway means land on which rail transit tracks and support infrastructure have been constructed to support the movement of rail transit vehicles, excluding station platforms.

Risk means the composite of predicted severity and probability of a hazard's consequences.

Risk Mitigation is a method or methods to eliminate or reduce the effects of hazards.

Risk Probability is the likelihood of a consequence, referencing the worst foreseeable but credible condition.

Roadway Worker Protection see definition for On Track Safety.

Safety event means an unexpected outcome resulting in injury or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment. Note: for FTA and ODOT reporting, safety events includes accidents, incidents, and occurrences as these are defined under *OAR 741-060-0020,* until such time that ODOT provides further instruction about reporting requirements.

Security means freedom from intentional harm.

Severity means a consequence of a hazard, taking as reference the worst foreseeable but credible condition.

Safety means freedom from unintentional harm.

Safety Assurance means the processes within TriMet's SMS that function to ensure the implementation and effectiveness of safety risk mitigations and that TriMet meets or exceeds its safety objectives through the collection and analysis of data and information.

Safety Event means an unexpected outcome resulting in injury or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.

Safety Management Policy is TriMet's documented commitment to safety and defines its safety objectives, responsibilities, and accountabilities of all employees for safety.

Safety Management System is the formal, top-down, organization-wide approach to managing safety risks and hazards and ensuring the effectiveness of mitigation efforts. SMS includes systematic procedures, practices, and policies for managing risks and hazards.

Safety Performance Target means a quantifiable level of performance or condition, expressed as a value for the measure related to safety management activities, to be achieved within a specified period.

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

Safety Risk means the composite of predicted probability and severity of a potential consequence(s) of a hazard, using as a reference the worst foreseeable but credible outcome.

Safety Risk Assessment is the formal activity by which a transit agency determines SRM priorities by establishing the significance or value of its safety risks.

Safety Risk Management focuses on the systemic management of safety risk resulting from technical systems that change over time. Note: it applies to all elements of our transit system, including infrastructure, vehicles and equipment, revenue, and non-revenue service activities, and may include staff or others who interface with the system (e.g., first responders). SRM continuously monitors the effectiveness of mitigations and supports decision-making to prioritize allocating resources to address potential hazard consequences.

Safety set-aside means allocating not less than 0.75 percent of assistance received by a large urbanized area provider under *49 USC 5307* to safety-related projects eligible under *49 USC 5307*.

Serious Injury means any injury that requires hospitalization of more than 48 hours, beginning within seven days from the injury date; results in fracture of any bone (except simple fractures of fingers, toes, or nose); causes severe hemorrhages, nerve, muscle, or tendon damage; involves any internal organ; second or third-degree burns, or burns affecting more than five percent of the body surface.

State safety oversight agency is established by a state that meets the requirements and performs the functions specified under *49 USC §5329(e)* and regulations outlined in *Part 674*.

Substantial Damage means any physical damage to transit or non-transit property including vehicles, facilities, equipment, rolling stock or infrastructure that 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. Substantial damage excludes damage such as cracked windows, dented, bent or small punctured holes in the body, broken lights, mirrors, or removal from service for minor repair or maintenance, testing, or video and event recorder download.

To the Maximum extent practicable, see the definition for as low as reasonably practicable.

Transit agency means an operator of a public transportation system that is a recipient or sub-recipient of Federal financial assistance under *49 USC 5307* or a rail transit agency.

Transit Asset Management means the strategic systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage performance, risks, and costs over their life cycles, to provide safe, cost-effective, and reliable public transportation, required by *49 CFR Part 625*.

Transit worker means any employee, contractor, or volunteer working on behalf of the transit agency.

Tolerable means a condition where benefits justify risk acceptance.

9.0 Reference: List of Acronyms

Acronym	Name
ACID	Accident Incident Database
AE	Accountable Executive
ASP	Agency Safety Plan
ATP	Accessible Transportation Program
ATU	Amalgamated Transit Union
BIL	Bipartisan Infrastructure Law
BOD	Board of Directors
CAP	Corrective Action Plan
CBD	Central Business District (Portland)
CCTV	Closed Circuit Television
CFR	Code of Federal Regulations
CMS	Competency Management System
COO	Chief Operating Officer
CSO	Chief Safety Officer
E&C	Engineering & Construction
EDSS	Executive Director of Safety & Security
FAST Act	Fixing America's Surface Transportation
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GM	General Manager
HRI	Hazard Risk Index
IDLH	Immediately Dangerous to Life or Health
IIJA	Infrastructure Investment & Jobs Act
IIJASC	Infrastructure Investment & Jobs Act Safety Comm,
ISA	Internal Safety Audit (conducted by Internal Audit Dept.)
ISR	Internal Safety Review (conducted by SAF)
JHA	Job Hazard Analysis
LRT	Light Rail Transit
LRV	Light Rail Vehicle
MAP-21 Act	Moving Ahead for Progress in the 21st Century Act
MOW	Maintenance of Way
NTD	National Transit Database

Acronym	Name
NTSB	National Transportation Safety Board
OAR	Oregon Administrative Rule
OCC	Operations Command Center
ODOT	Oregon Department of Transportation
OHA	Operational Hazard Assessment
OR-OSHA	Oregon Occupational Safety & Health
OTS	On Track Safety
PHA	Preliminary Hazard Assessment
PTASP	Public Transportation Agency Safety Plan (aka: ASP)
RACI	Responsible, Accountable, Consulted, Informed
RBI	Risk-Based Inspection
REM	Rail Equipment Maintenance
RFGPTS	Rail Fixed Guideway Public Transportation System
ROW	right-of-way
RRB	Rail Rule Book
SAF	Safety Department (also the prefix of an SAF doc. no.)
SDS	Safety Data Sheet
SME	Subject Matter Expert
SMIS	Safety Mgmt Information System (aka: IndustrySafe)
SMS	Safety Management System
SOP	Standard Operating Procedure
SRM	Safety Risk Management
SSO	State Safety Oversight
SSOA	State Safety Oversight Agency
TAM	Transit Asset Management
TCRC	Transit Change & Review Committee
TriMet	Tri-County Metropolitan Transp. District of OR
TSI	Transportation Safety Institute
USC	United States Code
WES	Westside Express Service
WSC	Workplace Safety Committee
WSCP	Workplace Safety Committee Program