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Prepared By	Michael Catsos	Director of SMS and Safety Oversight
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Reviewed By	Lauren Bradford	Chief of Safety Management

REVIEWED AND AUTHORIZED BY:

Phillip Eng	Date	General Manager and Chief Executive Officer
Timothy Lesniak	Date	Chief Safety Officer

REVISION HISTORY

Revision	Section (If applicable)	Approved By:	Signed By:	Date Submitted to DPU:	Description
0.0	ALL	FMCB	Steve Poftak	06/15/2020	Initial publication
1.0	PRF; 1; 2; 3; 4; 5; 6; 7; and 8	FMCB	Steve Poftak	06/25/2021	Updated internal Safety Plan review process; Added Safety Performance Targets for 2022; Updated organizational structure and safety committees; Modified SRM definitions; and Updated SMS training requirements. Contact MBTA Safety Division for a complete description of revisions.
2.0	PRF: 1: 2: 3: 4: 5: 6: 7: 8: APP	MBTA Board of Directors / JLMSC	Steve Poftak	12/31/2022	Updated Safety Policy Statement Added Safety Performance Targets for 2023 Updated safety committee structure Updated SMS implementation goals and objectives Clarified SRM and Assurance processes / activities Expanded Local Safety Committee structure and promotion descriptions Contact MBTA Safety Division for a complete description of revisions.
3.0	PRF: 1: 2: 3: 4: 5: 6: 7: 8: APP	MBTA Board of Directors / JLMSC	Phillip Eng	9/1/2023	Updated Safety Policy Statement Updated 2023 and added 2024 Safety Performance Targets Updated safety committee structure Updated SMS implementation goals and objectives Clarified SRM and Assurance processes / activities Expanded Local Safety Committee structure and promotion descriptions Contact MBTA Safety Division for a complete description of revisions.
4.0	PRF: 1: 2: 3: 4: 5: 6: 7: 8: APP	MBTA Board of Directors / SMRC / JLMSC	Phillip Eng	12/20/2024	Updated Safety Policy Statement Added CY 2026 Safety Performance Targets Revised safety committee structure description to align with updates to 49 CFR Part 673 Updated SMS implementation process description to reflect performance of SMS Gap Analysis and redevelopment of the SMS Implementation Plan Revised SRM and Safety Assurance processes / activities to align with deliverables to FTA under Special Directive 22-10 Contact MBTA Safety Division for a complete description of revisions.
5.0	PRF: 1: 2: 3: 4: 5: 6: 7: 8: APP	MBTA Board of Directors / SMRC / JLMSC	Phillip Eng	12/19/2025	Updated Safety Policy Statement Updated Safety Performance Targets for CY 2026 Added mitigations where safety Performance Targets were not met Updated SRM Likelihood assessment rubric Contact MBTA Safety Division for a complete description of revisions.

Applicability

The development and implementation of this safety plan applies to all MBTA directly operated and contract activities related to:

Heavy Rail;

Light Rail;

Bus; and

Paratransit Service.

MBTA passenger ferry operations regulated by the United States Coast Guard (USCG), as well as rail fixed guideway public transportation service regulated by the Federal Railroad Administration (FRA) are not subject to the requirements set forth in this safety plan.

This plan is intended to provide information on MBTA's Safety Management System.

Although MBTA's Transit Safety Plan complies with 49 CFR Part 673 and 220 CMR 151, the regulations allow for a multi-year implementation period. During the SMS implementation process, acceptance of this Transit Safety Plan by the Department of Public Utilities and the Federal Transit Administration does not constitute approval or acceptance of any process or component of the SMS. MBTA employees and contractors are required to comply with the policies and procedures as they are being implemented during the SMS phases contained within this plan.

Approvals

The MBTA Transit Safety Plan has been signed by:

_____

Phillip Eng

General Manager and Chief Executive Officer

Accountable Executive

_____

Date

_____

Timothy P. Lesniak

Chief Safety Officer

_____

Date

MBTA's Joint Labor-Management Safety Committee (JLMSC), established in accordance with requirements of the 2021 Bipartisan Infrastructure Law (BIL), approved this plan by consensus on December 2, 2025.

MBTA's Safety Management Review Committee (SMRC) reviewed this plan on December 4, 2025.

The MBTA Board of Directors' Safety, Health, and Environmental (SHE) Subcommittee reviewed this plan in December 2025.

MBTA's Board of Directors approved this plan by vote on December 18, 2025.

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2026 Safety Policy Statement

The Massachusetts Bay Transportation Authority (MBTA) is dedicated to providing safe, reliable, and accessible service to our communities and customers. We aim to foster a culture of safety throughout the organization by establishing safety performance standards and allocating the resources needed to ensure employee and passenger safety. Our Safety Management System (SMS) program is foundational to this effort, outlining safety risk management, safety assurance, and safety promotion activities.

All MBTA employees have a role within our SMS, and we are all accountable for delivering exceptional safety performance. Safety is a core value and primary responsibility for employees and all levels of management, as defined in all MBTA job descriptions. The MBTA's safety committee structure provides an avenue for reporting hazards, elevating safety issues, and guiding funding allocation. The highest-level safety committees, the Joint Labor-Management Safety Committee and Safety Management Review Committee, cultivate a cooperative relationship between labor and management to identify safety risk mitigations, set safety performance targets, and review and approve the Transit Safety Plan.

MBTA's commitment to strengthen and enhance its existing safety culture includes the following action steps:

- **Provide** the appropriate resources necessary to support effective, sustainable safety management.
- **Ensure** that staff and contractors obtain adequate safety-related training, are competent in safety management matters, and are only allocated tasks commensurate with their skills.
- **Promote** voluntary, non-punitive employee engagement in hazard identification and reporting through the Safety Hotline and Safety Hotline Portal. *Willful* disregard for safety is unacceptable and subject to disciplinary action as outlined in MBTA policies and rules.
- **Leverage** safety data technologies and reporting products to support and inform decision-making at all levels of the organization.
- **Improve** the organization and function of our safety committees to support SMS processes.
- **Establish** and maintain workplace safety programs that meet or exceed state and federal standards.

This Policy Statement shall remain continuously available to MBTA employees on TSTOP.

Approved by:

Phillip Eng

MBTA General Manager and SMS Accountable Executive

Date:

PRF 2 MBTA SMS IMPLEMENTATION

The MBTA's Safety Management System Implementation Plan (SMSIP) identifies actions needed to fully realize a robust culture of safety within the transit agency. The SMSIP builds upon the findings of the updated SMS Gap Analysis Report (2024) to address the major outcomes of the assessment, which noted that the MBTA lacks data-driven resource-based budgeting, formalized processes for SMS components, visibility into SMS structure, and methods for SMS process improvement. To address these gaps, the SMSIP describes a three-phase approach to elevating each of the four Components of SMS to a "Sustaining/Improving" maturity level, which is characterized by safety management training and the implementation of continuous improvement processes.

Each of the SMSIP phases addresses critical aspects of the SMS:

- Phase 1 – Increase Employee Awareness
- Phase 2 – Establish Remaining SMS Processes
- Phase 3 – Institutionalize Continuous Improvement and Address Remaining Training

For more detailed information concerning the methodology of the SMSIP and the actions associated with each phase of the implementation, please refer to the SMSIP available to all employees on T-STOP.

1 INTRODUCTION

The Massachusetts Bay Transportation Authority (MBTA) Transit Safety Plan (Safety Plan) is a comprehensive document intended to ensure the safety of customers, employees, contractors, emergency responders, and the general public. The Transit Safety Plan establishes Safety Management Systems (SMS) principles as its foundation. The four Safety Management System (SMS) components that apply to all facets of the Authority are:

1) **Safety Policy:** to align the entire MBTA under a safety management system for the purpose of prioritizing safety in management decision making.
2) **Safety Risk Management (SRM):** to implement processes that will identify, evaluate, and resolve risks, and track risk mitigations.
3) **Safety Assurance (SA):** to oversee that all the objectives are met through effective data collection and assessment.
4) **Safety Promotion:** to encourage workplace and public confidence in, knowledge of, and engagement with MBTA's commitment to ensuring safety.

These four components are the means to achieve the highest level of safety for MBTA's customers, employees, contractors, emergency responders, and the general public.

SMS is a comprehensive, collaborative approach that brings management and labor together to build on MBTA's existing safety foundation to mitigate risk, detect and correct safety problems earlier, share and analyze safety data more effectively, and measure safety performance more carefully. SMS applies resources to risk and is based on ensuring that MBTA has the organizational infrastructure to support decision-making at all levels regarding the assignment of resources.

1.1 MBTA TRANSIT SAFETY PLAN PURPOSE

The MBTA Transit Safety Plan governs and defines the authority, responsibilities, roles, and processes prescribed herein. It assures compliance with and application of federal, state, and local regulations and industry best practices. The MBTA Transit Safety Plan and resulting safety programs, policies, rules, orders, implementation, and processes represent the MBTA's commitment to safety as a core value.

MBTA's first Transit Safety Plan was signed into effect on June 15, 2020.

1.2 MBTA TRANSIT SAFETY PLAN SCOPE

The scope of the Transit Safety Plan spans all facets of safety management to systematically achieve the highest practical level of safety for MBTA's transit system. All MBTA employees contribute to safety. This Safety Plan is intended for use by all employees, and all employees have a responsibility to consider safety in all of their actions.

The MBTA SMS applies to all MBTA employees, managers, relevant contractors, and related service providers who are either directly or indirectly involved in providing transportation services. This includes MBTA bus, paratransit, light rail, and heavy rail activities including but not limited to operations, engineering, maintenance, administration, design, and construction; it also includes all equipment, vehicles, systems, sub-systems, and infrastructure.

1.3   FEDERAL, STATE, AND LOCAL AUTHORITY

1.3.1   Federal Transit Administration

The Federal Transit Administration (FTA) administers a national transit safety program and program compliance oversight process to advance the provision of safe, reliable, and equitable transit service through adherence with legislative, policy, and regulatory requirements.

MBTA is a large urbanized area provider, or a recipient or subrecipient of financial assistance under 49 U.S.C. 5307 that serves an urban area with a population of 200,000 or more as determined by the most recent decennial Census. MBTA serves the Boston, MA—NH urbanized area (UZA), with a service area extent of 3,244 square miles and service area population of more than 3.1 million according to FTA and Census data.

In April 2005, the U.S. Congress expanded FTA's regulatory role by granting authority to develop State Safety Oversight Programs, as defined by 49 CFR Parts 659 and 674, *"Rail Fixed Guideway Systems; State Safety Oversight."*

In July 2012, Congress passed Moving Ahead for Progress in the 21st Century Act ("MAP-21"; Pub. L. 112-141), which created a new Public Transportation Agency Safety Program, and brought about major safety-specific changes to all modes of the transit industry. The key elements of the program include 49 U.S.C. § 5326, "Transit Asset Management" and 49 U.S.C. § 5329, "Public Transportation Safety Program," which resulted in the following FTA rulemakings:

- 49 CFR 625, "*Transit Asset Management*" (final rule effective October 1, 2016)
- 49 CFR 670, *"Public Transportation Safety Program"* (final rule effective September 12, 2016)
- 49 CFR 672, *"Public Transportation Safety Certification Training Program"* (final rule effective August 20, 2018)
- 49 CFR 673, *"Public Transportation Agency Safety Plan"* (final rule effective July 19, 2019, revised April 2024)
- 49 CFR 674, *"State Safety Oversight"* (final rule effective April 15, 2016, revised October 2024)

49 CFR 673, *"Public Transportation Agency Safety Plan,"* formally requires public transportation systems to develop a Public Transportation Agency Safety Plan based on the SMS approach, the development and implementation of which will help ensure that public transportation systems are safe nationwide.

Reauthorization of the FTA programs occurred in June 2021 when Congress passed the Infrastructure Investment and Jobs Act, ("Bipartisan Infrastructure Law" (BIL); Pub L. 117-58). The law authorized funds for several initiatives, including transit programs and other purposes. Key aspects of 49 U.S.C. § 53, "*Federal Transit Law*" include:

- State safety oversight agencies authority to collect and analyze data and conduct risk-based inspections of rail fixed guideway transportation systems.
- Agency safety plans must be consistent with Centers for Disease Control and Prevention and State health authority guidelines to minimize exposure to infectious diseases.
- The safety plan is developed in cooperation with frontline employee representatives.

- The establishment of a Safety Committee, composed of equal representatives of frontline employees and management, that is responsible for identifying, recommending, and analyzing the effectiveness of risk-based mitigations or strategies to reduce consequences identified in the agencies' safety risk assessment.
- Development of a risk reduction program for transit operations to improve safety by reducing the number and rates of accidents, injuries, and assaults on transit workers based on data submitted to the national transit database, including a reduction of vehicular and pedestrian accidents involving buses that include measures to reduce visibility impairments for bus operators and the mitigation of assaults on transit workers.
- The setting of risk reduction performance targets using a three-year rolling average of the data submitted to the National Transit Database. Performance targets will be established in the next revision to the National Transportation Safety Plan.
- The allocation of not less than 0.75 percent of section 5307 funds to safety related projects. If the performance targets are not met, then this funding must be re-allocated to meet the performance targets, which includes modifications to rolling stock and de-escalation training.
- Maintenance personnel required to meet the existing safety training requirements, and safety, operations, and maintenance personnel to complete de-escalation training.

Revisions to 49 CFR 673 in 2024 aligned the regulation with the requirements of the BIL and expanded on certain requirements in the Law. Key changes included:

- Requirements for documentation of how the frontline employee Safety Committee is composed, how meetings are scheduled and recorded, how disputes are resolved, and how frontline individuals are compensated for their participation
- Clarified expectations for the relationship between the Safety Committee and the risk reduction program as a whole
- Additional detail on the transit agency's risk reduction program and its relationship with performance monitoring, risk management, and safety assurance

49 CFR 674, "State Safety Oversight," carries out the mandate of 49 U.S.C. 5329 for State safety oversight of rail fixed guideway public transportation systems. Part 674 underwent revisions in 2024, and the updates took effect starting in 2025.

1.3.2 FTA Safety Management Inspection

In 2022, MBTA demonstrated a pattern of safety events which included revenue and nonrevenue derailments, train and grade crossing collisions, fatalities, and other events involving both MBTA employees and passengers. In addition, MBTA's safety performance, as monitored through data reported to the National Transit Database (NTD), indicated a higher overall rate of safety events and increase in severity of events. As a result of these two observations, the FTA conducted a Safety Management Inspection (SMI) in 2022.

FTA's 2022 SMI included a review of rail transit operations, training, vehicle maintenance, signals and train control, and track access. It also covered capital project delivery, traction power, facilities, and safety management. As a result of the inspection, the FTA issued eight Special Directives to the MBTA. In response, MBTA developed Corrective Action Plans (CAP) and Action Items that detail how the Authority will address each FTA Special Directive and implement safety improvements across the organization. Remaining recommendations from the 2019 Safety Panel Report were considered and woven into the CAP process.

1.3.3   Massachusetts Department of Public Utilities

FTA recognizes the Massachusetts Department of Public Utilities (DPU) as the State Safety Oversight Agency (SSOA) for the state of Massachusetts.[1] M.G.L. c. 161A, s. 3(i) empowers the Massachusetts Department of Public Utilities (DPU) to regulate the safety of equipment and operations at MBTA as prescribed in 220 C.M.R. 151.00, et seq., "*Rail Fixed Guideway System: System Safety Program Standard.*"

DPU exercises jurisdiction over the safety of MBTA equipment and operations and is responsible for establishing standards for rail safety practices In addition, DPU oversees the execution of these practices and procedures to ensure compliance by utilizing a broad range of tools and powers.

The FTA's Special Directive 22-34 requires that the DPU and MBTA (as the Rail Transit Agency) include in MBTA's ASP provisions stating that MBTA will comply with DPU's SSOA Program Standard as it relates to inspections of the RTA and the DPU's Risk-Based Inspection ("RBI") program. DPU's RBI program is set forth in its Standard Operating Guideline Manual Section 5.8. Additionally, the MBTA complies with the inspection and access provisions applicable to the MBTA in DPU's Standard Operating Guideline Manual (SOG) Sections 2.7a, 5.6, and 5.6a.

The BIL authorizes SSOAs including DPU to conduct risk-based inspections of the transit agencies they oversee. The BIL also authorizes SSOAs to collect and analyze the qualitative and quantitative data required to prioritize inspections in accordance with levels of safety risk. Under 220 CMR 151, this authority includes the ability of DPU personnel to access MBTA facilities and property both with and without advance notice, and to inspect infrastructure, equipment, operations, records, personnel, and data. Further, 220 CMR 151.10(5) identifies specific items that the DPU may request access to regarding data; including defect data, work orders, and inspection data. See 220 CMR 151.10(5) for details.

To support DPU's Risk-Based Inspection (RBI) program, the MBTA coordinates with DPU on policies and procedures for inspection access and data collection. The policies and programs defining the DPU's authority to carry out a risk-based inspection program are outlined further within the DPU's Program Standard, including but not limited to, conducting risk-based inspections, a description of the types of activities, and data collection.

The MBTA will comply with the inspection provisions applicable to MBTA in DPU's SOG Section 5.8.2 regarding RBI, including inspections with and without prior notice. This includes but is not limited to, when necessary or requested by DPU, MBTA will provide support resources including but not limited to flaggers or facility escorts to ensure DPU staff have the access necessary to conduct inspection and RBI activities. MBTA also will provide DPU with access to safety reporting data, including but not limited to MBTA's Hazard Tracking database, incident reporting data, and inspection data. MBTA will respond to DPU's formal Requests for Information within the designated timeframe indicated in the request or the timeframe in any DPU approved extension. MBTA will comply with the provisions applicable to MBTA in DPU's SOG Section 5.8.3 regarding providing DPU with the data MBTA collects when identifying hazards and assessing and mitigating safety risks, and will provide such data to DPU.

MBTA is required to develop and implement the MBTA Transit Safety Plan to comply with 49 CFR Parts 673 and 674 and 220 CMR 151.00, subject to acceptance by DPU and ultimately FTA. MBTA's relationship with its SSOA is a multi-level safety partnership, through regulation

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[1] Refer to 49 CFR 674, *"State Safety Oversight"* for detailed regulatory information.

and collaboration. DPU and MBTA's Chief Safety Officer (CSO) meet at least monthly. DPU and MBTA management meet at least quarterly and DPU meets at least annually with the Accountable Executive and Board of Directors, or equivalent entity.

1.3.4   Public Health Guidelines

As required by the BIL, MBTA follows all guidelines and standards set by the Centers for Disease Control (CDC) and Massachusetts Department of Public Health with regard to preventing the spread of and minimizing exposure to infectious disease such as COVID-19. MBTA follows all applicable federal and state guidelines and requirements, including those regarding face coverings, vaccinations, testing, social distancing, and cleaning and sanitizing of vehicle and facilities. MBTA's Environmental Department maintains services to neutralize and remove needles and syringes found in MBTA vehicles and facilities as part of broader efforts to limit exposure to infectious disease and manage blood-borne pathogens. MBTA has joined the American Public Transportation Association (APTA) Health & Safety Commitments Program to publicly pledge to follow all official guidance and prioritize the health of its customers, employees, and contractors. MBTA deploys the appropriate risk management methodology as needed to address identified hazards and risks.

1.4   PLAN REVIEW, REVISION, AND APPROVAL

The plan may require revision due to changes identified during the annual internal review process or when modifications are required off-cycle.

Modifications to the plan are sometimes initiated in response to regulatory changes. MBTA's Senior Director of Regulatory Affairs within the General Manager's office, as well as Safety's Director of SMS and Safety Oversight and other key Safety Division mangement, are enrolled in applicable FTA distribution lists and regulatorly monitor federal and state regulatory changes impacting MBTA's safety program.

Per 220 CMR 151 (4), DPU requires an annual review of the Safety Plan on or before August 1st of every year. If updates to the Safety Plan are required, the Safety Plan and any accompanying procedures and supporting references must be submitted to DPU for approval on or before September 1st. If no update is required, MBTA must notify DPU in writing on or before September 1st. The Authority may request an extension of the deadline for submission, which may be granted or denied at the discretion of DPU.

Modifications may be requested by DPU due to internal audit report results, on-site reviews and investigations, changing trends in safety event or security data, or other reasons that may come to the attention of DPU. Modifications may also be necessary where MBTA management identifies necessary updates such as organizational changes, procedural updates, or reassignment of functional responsibilities. If the Safety Plan is revised outside of the annual review cycle, then MBTA must submit the Safety Plan and any accompanying procedures and supporting references to DPU within 30 calendar days of the event requiring an update.

The MBTA Transit Safety Plan will be reviewed using the following internal review process prior to submitting the revised Transit Safety Plan to the DPU for review and approval as required by state regulation 220 CMR 151(4) as illustrated in Figure 1.

Figure 1: Transit Safety Plan Review and Approval Process

1.4.1 MBTA Transit Safety Plan Internal Review

MBTA adheres to the MBTA Transit Safety Plan internal review process, which ensures labor and executive management have reviewed and approved the revised Transit Safety Plan before it is submitted to DPU for review and approval.

1.4.1.1 Joint Labor-Management Safety Committee (JLMSC) Review and Approval

- The Safety Division submits the MBTA Transit Safety Plan to the JLMSC for review and approval, fulfilling the BIL requirement that a joint labor-management safety committee review and approve the Transit Safety Plan. Any substantive changes received from other reviewers in this process must be reviewed and approved by the JLMSC.

- Upon receiving comments and/or corrections from the JLMSC, the Safety Division will review and update the Safety Plan as applicable. The revised Safety Plan will be resubmitted to the JLMSC for approval.

1.4.1.2 Safety Management Review Committee (SMRC) Review

- The Safety Division submits the updated MBTA Transit Safety Plan to the SMRC for review for any comments and/or corrections.

- Upon receiving comments and/or corrections, the Safety Division will review and update the Safety Plan as applicable. The revised Safety Plan will be resubmitted to the JLMSC for approval.

1.4.1.3 Accountable Executive Review and Signature

- The MBTA CSO submits the updated Safety Plan to the Accountable Executive for review and signature.

- Upon receiving comments and/or corrections from the Accountable Executive, the Safety Division will update the Safety Plan and resubmit the updated Safety Plan to the Accountable Executive for approval and signature. The revised Safety Plan will be resubmitted to the JLMSC for review and approval, and then provided to the Accountable Executive.

- MBTA's Accountable Executive provides certification of compliance with 49 CFR Part 673 and 220 CMR 151 by signing this Transit Safety Plan (and subsequent revisions) and providing the date of their signature as the certification date.

1.4.1.4 MBTA Board of Directors (BOD) Review and Approval

- The signed Safety Plan is first submitted to the Safety, Health & Environment Subcommittee within the MBTA Board of Directors for review, and then to the full Board of Directors for vote of approval prior to its submission to the DPU.

- Upon receiving comments and/or corrections from the BOD or its Safety, Health, & Environment Subcommittee, the Safety Division will update the Safety Plan, resubmit it to the JLMSC for review and approval, resubmit the updated Safety Plan to the Accountable Executive for approval and signature, and then submit the signed, updated Safety Plan for BOD vote of approval.

1.4.2 DPU Review and Approval

MBTA is committed to open communication with DPU regarding newly-proposed updates to the Transit Safety Plan, and will coordinate DPU annually before the updated Safety Plan is presented to the Board of Directors to ensure that major inputs, comments, and questions are addressed in the forthcoming revised version.

At the conclusion of MBTA's review process, the Safety Plan will be delivered to DPU in electronic format via email. Supporting procedures and referenced materials may be submitted in hard copy, by fax, mail, email, or in-hand delivery. Once the Safety Plan has been approved by DPU, MBTA must submit a copy to DPU in an unalterable format (electronic or hard copy).

Within fifteen (15) business days of receipt of the revised MBTA Transit Safety Plan, DPU will issue a response that it approves, conditionally approves, or is unable to approve the Safety Plan, along with the checklist used to review the Safety Plan. If the Department rejects the document, the Transportation Authority has 20 days from notice of rejection to submit a revised document to the Department for approval. The DPU may grant an extension beyond the 20 days for good cause shown.

If DPU is unable to approve a final document, or to resolve a dispute with the MBTA resulting from the development of the document, DPU must either:

1. Report the areas of disagreement in writing to, and negotiate with, MBTA until the dispute is resolved;
2. Develop its own document according to the requirements of the relevant section, and submit it to MBTA for implementation; or
3. Issue any Order that it deems necessary.

2 SMS SUPPORTING ELEMENTS

SMS is the framework that mitigates and controls safety risk within the organization. The MBTA uses this framework to ensure its employees are safe, who then, in turn, deliver safe and reliable service to its communities and customers. Many elements within this framework manage safety risk at the MBTA, each of which is described in the following sections. Each supporting element is intended to strengthen safety at the MBTA.

2.1 SAFETY CULTURE

MBTA is committed to improving its safety culture through implementation and support of a formal SMS.

MBTA defines its culture as the product of the individual and group values, attitudes, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety programs. Organizations with a positive safety culture are characterized by communications founded on mutual trust, shared perceptions of the importance of safety, and confidence in the efficacy of preventative measures.

It is the intention of senior management to institute a positive safety culture throughout the organization. MBTA's Strategic Plan establishes Safety as one of eight goals for the organization, and empowers and supports staff to develop a culture which prioritizes and promotes safety. To accomplish this, all employees must be responsible for, and consider the impact of, safety in every task they perform. This approach must be so inherent that it defines MBTA's culture. This safety-centric approach sets the expectations for safe behavior at MBTA.

As part of its SMS implementation, MBTA will measure its safety culture using surveys, or an equivalent method. Having a baseline understanding of employees' perception of safety at the MBTA will help management understand what components of the SMS should be improved and where MBTA has success in implementing SMS to support a positive safety culture.

2.1.1 Informed Culture

In an informed culture, the organization collects and analyses relevant data, and actively disseminates safety information. Management fosters a culture where people understand the hazards and risks inherent in their areas of operation. Personnel are provided with the necessary knowledge, skills, and job experience to work safely, and they are encouraged to identify threats to their safety and to seek changes necessary to reduce or eliminate exposure to these hazards.

2.1.2 Reporting Culture

A reporting culture means cultivating an atmosphere where people have confidence to report safety concerns without fear of blame or reprisal. Employees must know that confidentiality will be maintained and that the information they submit will be acted upon, otherwise they will decide that there is no benefit in their reporting.

The workforce must feel confident that reported hazards will be addressed. They must also be assured that the reporting will not result in retaliation. Any retaliating act against an employee who exercises their workplace rights will be investigated as this type of behavior is not accepted at the MBTA. Violation of any employee workplace rights could lead to action up to and including discharge.

2.1.3   Learning Culture

A learning culture means that an organization can learn from its mistakes and make changes. It will also ensure that people understand the SMS processes at a personal level.

Learning extends beyond initial skills training and is valued, instead, as a continuous process. Employees are encouraged to develop and apply their skills and knowledge to enhance organizational safety. Safety reports are shared amongst employees so that they can learn from the findings associated with the near miss or event.

2.1.4   Just Culture

In a just culture, errors and unsafe acts will not be punished if the error was unintentional. However, those who act recklessly or take deliberate and unjustifiable risks will still be subject to disciplinary action.

A just culture is described as an atmosphere of trust in which people are encouraged, and even rewarded, for providing essential safety-related information, but also delineates between acceptable and unacceptable behavior. Throughout MBTA's SMS implementation, employees should begin to perceive that atmosphere of trust for coming forward with safety concerns and issues.

While a non-punitive environment is fundamental for a good reporting culture, all employees must understand the difference between acceptable and unacceptable behavior.[2] Reckless, or intentional violations will not be tolerated, even in the non-punitive environment. MBTA's just culture will recognize that, in certain circumstances, there may be a need for punitive action and management will define the line between acceptable and unacceptable actions or activities.

Safety culture is the product of personal dedication and accountability of all employees. Individual efforts alone do not necessarily result in the desired outcome. MBTA realizes that a positive safety culture only develops with an aggregate attitude that is manifested by a pervasive type of safety thinking. This type of organizational thinking will permit employees to have an inherently questioning attitude, a resiliency to complacency, a commitment to excellence, and a sense of personal accountability. Senior management provides a vibrant, encouraging atmosphere in which individual growth is recognized and rewarded.

To further promote a positive safety culture throughout MBTA, senior management has instituted an employee recognition program, the annual Agents of Safety Awards, to honor individuals who make a significant contribution to safety.

2.1.5   Flexible Culture

A flexible culture is one where the organization and the people in it are capable of adapting effectively to changing demands.

2.2   MBTA STRATEGIC PLAN

The MBTA Strategic Plan lays out the vision, mission, values, and goals for the MBTA, establishes its priorities, and is a blueprint for continuous improvement that will fulfill the vision of the MBTA that is needed to support the Authority's broader goals.

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[2] Different MBTA departments have specific rulebooks that address prohibited acts for employees.

Figure 2 documents the different safety plans that work together to inform one another and support the Board of Directors' MBTA Strategic Plan.

Figure 2: MBTA Safety-Related Plans

2.3   COMPREHENSIVE EMERGENCY MANAGEMENT PLAN

While MBTA has taken every precaution to avoid emergency events and situations, it is inevitable that safety events may still occur. In order to deal with these unexpected situations in a predefined manner, the Comprehensive Emergency Management Plan (CEMP) has been developed and is maintained by the MassDOT/MBTA Security & Emergency Management Department. Furthermore, facility evacuation procedures are located on-site across the MBTA. Due to the security sensitive nature of this plan, only publicly available content may be included in this section. The CEMP is available for review by those possessing the appropriate security clearance.

Transit evacuation drills take place at least annually at the MBTA. Coordination between MBTA departments and first responders provides a proactive approach to effectively managing safety risks. Lessons learned from real and simulated evacuations are reviewed for ineffective risk mitigations, which initiates the Safety Risk Management process described in Chapter 5 of this Transit Safety Plan.

The MBTA CEMP satisfies FTA's requirement to include or incorporate by reference an emergency preparedness and response plan or procedures that addresses, at a minimum, the assignment of employee responsibilities during an emergency; and coordination with Federal, State, regional, and local officials with roles and responsibilities for emergency preparedness and response in the transit agency's service area.

2.4 TRANSIT ASSET MANAGEMENT PLAN

MBTA's Transit Asset Management (TAM) Plan describes: the capital asset inventory; condition of inventoried assets; TAM performance measures, targets, and prioritization of investments aligned with the agency's TAM and State of Good Repair (SGR) policy, strategic goals and objectives; as well as the strategies, activities, and resources required for delivering the plan (including decision support tools and processes); and other agency-wide approaches to continually improve TAM practices.

2.5 OCCUPATIONAL HEALTH AND SAFETY PLAN

MBTA developed an Occupational Health & Safety (OHS) Plan which is made available to employees on T-STOP, MBTA's intranet. The MBTA OHS Plan governs and defines the authority, responsibilities, roles, and processes that provide MBTA Executive and Senior Management with a framework to conduct workplace safety analysis and decision-making, and to implement related workplace safety programs. As MBTA implements SMS, occupational health and safety programs will also be implemented using SMS processes and procedures documented in this Safety Plan. The Massachusetts Department of Labor Standards provides oversight of workplace safety programs and the OHS Plan.

2.6 MASSDOT/MBTA RAILROAD SYSTEM SAFETY PROGRAM PLAN

MassDOT/MBTA's Railroad System Safety Program (SSP) Plan is regulated under 49 CFR Part 270 and is not subject to review by the Federal Transit Administration. However, it supports the Strategic Plan, which is MBTA's blueprint for continuous improvement. The SSP Plan provides MBTA's strategic and management goals to affirm and execute its commitment to provide a safe, reliable, and sustainable commuter rail transportation service and ensures compliance with federal, state, and local regulations, and appropriate industry best practices.

MBTA's commuter rail and transit rail management teams coordinate to address safety issues common to both systems, including management of maintenance and construction in corridors with adjacent transit rail and commuter rail.

2.7 DOCUMENTATION AND RECORDS MANAGEMENT

MBTA maintains critical files, important records, and other information as dictated by regulatory compliance obligations. These active documents and records are maintained as paper copy and/or electronic files. All records are maintained in structured systems that provide legibility, original dates, revision dates, and easy retrieval.

49 CFR 673.31 requires a transit agency to maintain documents related to this Safety Plan and the implementation of the SMS, and results from SMS processes and activities, for a minimum of three years after they are created. FTA, any other Federal entity, and the DPU have access to any SMS documentation maintained by the MBTA, upon request. Regulatory agencies may perform on-site visits to review any SMS documentation.

Figure 3 lists SMS records that are retained in accordance with state and federal standards. Some documents listed in Figure 3, including this Safety Plan, are subject to permanent

retention under the Massachusetts State Records Schedule; further guidance is available from the Records & Information Management staff in Document Management:

SMS Record	Bus/Rail Responsible Department	Key Reports or Actions Required
Internal Safety Audits	All	Final Internal Audit/Review Report, which is submitted to DPU annually.
Reporting Safety & Security Data to NTD	MBTA Safety Division	Electronically submitted to NTD monthly and certified for accuracy annually.
Annual Revision of MBTA Transit Safety Plan	GM	MBTA Transit Safety Plan submitted to DPU.
Safety Database (Origami)	MBTA Safety Division	Hazard and incident data continuously created and updated.
Comprehensive Emergency Management Plan	All	MBTA's emergency preparedness and response plan.
Transit Asset Management Plan	All	MBTA TAM Plan certified by the Accountable Executive.
Safety Certification of Capital Infrastructure Projects	Capital Delivery, and other affected departments	Certification letter sent to MBTA GM at completion of project including final signed Certified Items List (CIL) and open items log.
Safety Certification of Systems and Vehicle Procurements and Overhauls	Vehicle Engineering, and other affected departments	Certification letter sent to MBTA GM prior to system or vehicle entering revenue service. Signed CIL completed and Certificates of Conditional Safety Certification completed for each vehicle.
Root Cause Analysis	Transportation, E&M, CD, Vehicle Maintenance	Conducted for certain safety event investigations. Safety works with other departments to develop report and attainable corrective actions.
Assessments	JLMSC as applicable	Formal reports are finalized and retained, or submitted to other departments, DPU, or outside agencies as applicable.
SRM Outputs/Products	JLMSC as applicable	Formal reports are finalized and retained, or submitted to other departments, DPU, or outside agencies as applicable.
Safety Event Investigation	Transportation, E&M, CD, Vehicle Maintenance	Formal deliverables are submitted to DPU (or DLS, for employee injuries) through a preliminary report within one business day and a final report submitted with sixty days.
Responses to FTA and NTSB advisories and regulations	JLMSC as applicable	Formal responses are submitted to DPU and/or the relevant federal or state agency.

Figure 3: SMS Documentation and Recordkeeping

2.8   TEMPORARY SUSPENSION OF SAFETY PROGRAMS

In the case of unforeseen circumstances (e.g., COVID-19) that interfere with MBTA's ability to perform safety activities described in this Transit Safety Plan, MBTA may take the unusual step of temporarily suspending a Safety Program (e.g., Safety Rules Compliance Program) associated with those activities. MBTA will notify DPU within two business days of any safety-related program suspension. An explanation will be provided to DPU as to why a particular Safety Program is suspended. A plan will be developed within 30 calendar days of Safety Program suspension to understand when MBTA may be able to proceed with its Safety Program requirements.

3   SAFETY PERFORMANCE

FTA has established safety performance criteria standards in the National Public Transportation Safety Plan that all transit agencies must meet at a minimum. This section of the Safety Plan establishes MBTA's specific safety performance targets. The Accountable Executive reviews the Safety Plan and incorporates updated safety performance targets annually for approval.

The MBTA Safety Division facilitates a monthly Executive Safety Performance Management Session meeting which is attended by Authority leadership and senior management representatives from all impacted departments and functions. This recurring meeting is dedicated to review and discussion of safety performance, key recent events, and notable trends and patterns; results from the Session inform management decision-making performed via SMS processes and the formal SMS-based safety meeting structure.

3.1   SAFETY RISK REDUCTION PROGRAM

MBTA's process for establishing, tracking, and updating safety performance targets, along with aspects of its Safety Risk Management and Safety Assurance activities, combine to form the Authority's safety risk reduction program. This program improves safety performance by reducing the number and rate of safety events, injuries, and assaults on transit workers. Among the objectives of the risk reduction program are to:

- Reduce and mitigate vehicular and pedestrian safety events involving transit vehicles
- Reduce and mitigate assaults on transit workers

The safety performance targets within this document, set annually by the Joint Labor-Management Safety Committee and approved by MBTA leadership, are established in support of the safety risk reduction program. Safety risk mitigations identified and recommended by the Joint Labor-Management Safety Committee are considered by the MBTA on a continuous basis to improve performance in relation to targets and achieve an overall reduction in risk.

MBTA monitors safety performance against annual safety performance targets for the safety risk reduction program. If MBTA does not meet established annual safety performance targets, the Authority must:

- Assess associated safety risk
- Mitigate associated safety risk based on the results of a safety risk assessment
- Document these mitigations in the Transit Safety Plan and a plan to address deficiencies identified through performance assessment that is developed and carried out under the direction of the Accountable Executive
- Allocate the safety set-aside in the following fiscal year to safety-related projects that are reasonably likely to assist MBTA in meeting performance targets in the future

3.2   MBTA SAFETY PERFORMANCE TARGETS

The MBTA Transit Safety Plan provides collaborative strategic and management performance objectives to affirm and execute its commitment to provide a safe, reliable, and sustainable regional transportation service, and to ensure compliance with federal, state, and local regulations and appropriate industry best practices. Safety performance measures are among the many measures established by MBTA to gauge the organization's effectiveness.

MBTA safety performance targets assist management in determining the status of the SMS and making informed safety-related decisions for resource allocation, management oversight, and

intervention. Safety performance targets are reviewed monthly in safety reports and dashboards; they are also discussed routinely within the safety committee structure (see chapter 4) and at the MBTA Board of Directors' Safety, Health, and Environmental subcommittee.

MBTA's Joint Labor-Management Safety Committee (JLMSC) and Safety Management Review Committee (SMRC) established initial performance targets in the following categories using the 3-year rolling average of data submitted to the National Transit Database. MBTA's safety performance criteria have been amended in accordance with measures set forth in the National Safety Plan.

Federal regulations and the risk reduction program require MBTA to assess safety risk associated with areas where established annual safety performance targets were not met. MBTA is further required to mitigate risk based on the results of this assessment. Risk assessment details and risk mitigations in each applicable area are described below to satisfy requirements in 49 CFR 673.27(d)(3)(ii). The signatures of the Accountable Executive and Chief Safety Officer on this plan constitute acceptance of the residual risks identified herein.

All risk assessments are based on the effectiveness of MBTA's existing controls relative to each safety event type in Calendar Year 2024, the latest period for which a full Calendar Year of performance data is available and for which MBTA can definitively state that annual targets were either met or not achieved. For new targets established for CY 2025, data collection is ongoing and MBTA has not yet formally met or missed its targets; as such, these SPIs are not presented with an associated risk assessment and risk mitigations (with the exception of Assaults on Transit Workers, the risks associated with which are subject to ongoing mitigations developed in response to FTA General Directive 24-1). Risk assessments and mitigations relative to all target areas described below will be included in the subsequent Transit Safety Plan.

All actual and target performance rates in this plan, except for System Reliability, are expressed as a rate per million vehicle revenue miles traveled by the corresponding mode. System Reliability is expressed as a rate based on the total count of failures relative to the total vehicle revenue miles traveled by mode. All target counts are rounded to the nearest whole number greater than or equal to 1.

All safety event data within this plan is derived from safety performance information submitted by MBTA to NTD and available in the following locations:

- Vehicle & Passenger Car Revenue Miles, Fatalities (all categories), Injuries (all categories), Collisions (all categories):
https://www.transit.dot.gov/ntd/data-product/safety-security-time-series-data

- Major Events:
https://www.transit.dot.gov/ntd/data-product/safety-security-major-only-time-series-data

- Transit Worker Assaults:
https://www.transit.dot.gov/ntd/data-product/safety-and-security-ss-event-details

  *NTD's Major and Non-Major Time Series datasets do not fully reflect assaults as defined in the National Public Transportation Safety Plan and in 49 CFR Part 673. The Assault values presented in this plan are the sum of Major and Non-Major assaults reported by year contained within the Data tool at the above link. These reports align

with FTA's "Assault on a Transit Worker Guide: Full Reporters" guidance document issued in 2024: https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-05/Assault-on-a-Transit-Worker-Guide-Full-Reporters.pdf

- Major Mechanical System Failures:
2024: https://www.transit.dot.gov/ntd/data-product/2024-annual-database-vehicle-maintenance
2023: https://www.transit.dot.gov/ntd/data-product/2023-annual-database-vehicle-maintenance
2022: https://www.transit.dot.gov/ntd/data-product/2022-annual-database-vehicle-maintenance

The following Vehicle and Passenger Car Revenue Miles values from NTD serve as the basis for MBTA's 3-year rolling average rates and target rates for the upcoming calendar year:

Table 1 Vehicle and Passenger Car Revenue Miles

Mode	2022 NTD VRM	2023 NTD VRM	2024 NTD VRM	2022-2024 Total NTD VRM	Three-Year Average NTD VRM
Heavy Rail	19,389,763	16,798,871	19,115,475	55,304,109	18,434,703
Light Rail	5,282,311	5,695,608	6,371,252	17,349,171	5,783,057
Bus	21,363,995	20,687,954	20,899,181	62,951,130	20,983,710
Paratransit	8,206,984	8,476,732	9,347,768	26,031,484	8,677,161

3.2.1   Safety Performance Measure: Fatalities

MBTA fatality rates vary across transportation modes due to distinct operating environments and the inherent safety risk exposure associated with each. MBTA is committed to reducing the number of fatalities across its system to zero. Every year, MBTA partners with Operation Lifesaver, which is a national nonprofit dedicated to educating the public on the dangers of trespassing on railway properties, with the goal of reducing the number of collisions, fatalities, and injuries on or near railroad tracks. In addition to partnering with Operation Lifesaver, MBTA partners with Samaritans, a nonprofit dedicated to preventing suicides. MBTA continues to invest in proactive solutions to reduce the number of fatalities to zero.

Fatalities are reported to the National Transit Database (NTD) and are defined as a death due to a collision, derailment, fire, hazardous material spill, act of God, personal security event, or other safety events. Fatalities that occur due to an illness or other natural causes are not reportable. In accordance with FTA guidance, trespassing and suicide-related fatalities are also excluded for this fatality safety performance measure.

Table 2 Fatality Safety Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	5	1	3	3.00	0.26	0.06	0.16	0.16
Light Rail	0	1	0	0.33	0.00	0.18	0.00	0.06
Bus	0	0	1	0.33	0.00	0.00	0.05	0.02
The RIDE	0	0	0	0.00	0.00	0.00	0.00	0.00

Mode	2024 Target (count)	2024 Actual Performance (count)	Difference	2024 Target (rate)	2024 Actual Performance (rate)	% Difference
Heavy Rail	0	3	3	0.00	0.16	N/A
Light Rail	0	0	0	0.00	0.00	N/A
Bus	0	1	1	0.00	0.05	N/A
The RIDE	0	0	0	0.00	0.00	N/A

Mode	Initial Severity	Initial Mitigation Effectiveness	Initial Risk Factor
Heavy Rail	Catastrophic (1)	Limited (C)	Serious
Light Rail	Catastrophic (1)	Effective (E)	Medium
Bus	Catastrophic (1)	Limited (C)	Serious
The RIDE	Catastrophic (1)	Effective (E)	Medium

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Heavy Rail	MBTA's Safety Division will partner with internal stakeholders to develop and implement customer- and employee-facing communications regarding situational awareness and in-station safety.	Director of SMS and Safety Oversight	6/1/2026	Medium
Heavy Rail	MBTA will progressively implement the Operational Testing and Inspection Program (OTIP) to monitor and assess rules compliance. As a component of this program, MBTA will expand opportunities for coaching and communication with vehicle operators, better managing operator actions which may otherwise be causal or contributing factors in safety events.	Senior Director of Operating Rules Compliance	12/31/2026	Medium

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Light Rail	This target was met in 2024; MBTA will continue applying existing controls to meet or exceed the target for CY 2026.	N/A	N/A	Medium
Bus	Pending the outcome of a 2025 pilot, Bus Operations plans to deploy dual-facing dash cameras. These cameras use AI-driven event detection and feed events into a coaching workflow that managers use to address unsafe behavior. If the pilot is successful, Bus Operations will deploy systemwide.	Executive Director for Bus Operations	7/1/2026	Medium
The RIDE	This target was met in 2024; MBTA will continue applying existing controls to meet or exceed the target for CY 2026.	N/A	N/A	Medium

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	0	0.00	0	0.00
Light Rail	0	0.00	0	0.00
Bus	0	0.00	0	0.00
The RIDE	0	0.00	0	0.00

3.2.2   Safety Performance Measure: Transit Worker Fatalities

Transit Worker Fatalities are a subset of the overall fatality targets for the authority and follow all of the FTA guidance listed above for Fatalities with the additional scope narrowed to include all transit worker fatalities defined by the NTD, including the categories "Transit Employee/Contractor", "Transit Vehicle Operator", and "Other Transit Staff".

Table 3 Transit Worker Fatality Safety Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	0	0	0	0.00	0.00	0.00	0.00	0.00
Light Rail	0	0	0	0.00	0.00	0.00	0.00	0.00
Bus	0	0	0	0.00	0.00	0.00	0.00	0.00
The RIDE	0	0	0	0.00	0.00	0.00	0.00	0.00

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	0	0.00	0	0.00
Light Rail	0	0.00	0	0.00
Bus	0	0.00	0	0.00
The RIDE	0	0.00	0	0.00

3.2.3   Safety Performance Measure: Injuries

Any harm to persons that requires immediate medical attention away from the scene because of a reportable event is considered a reportable injury. MBTA reports to NTD anytime a person is transported away from the scene for medical attention as an injury, whether or not the person appears to be injured. For this performance measure, injuries resulting from assaults and other crimes have been excluded.

For rail mode events, in addition to injuries requiring transport from the scene, injuries defined as serious are automatically reportable. Individuals with serious injuries may or may not have been transported away from the scene for medical attention. NTD defines a serious injury as one that:

- Requires hospitalization for more than 48 hours within 7 days of the event;

- Results in a fracture of any bone (except simple fractures of fingers, toes, or nose);

- Causes severe hemorrhages, or nerve, muscle, or tendon damage;

- Involves an internal organ; or

- Involves second- or third-degree burns, or any burns affecting more than five percent of the body surface.

For bus and other non-rail events, an individual seeking medical care several hours or days after an event is not reportable as an injury. A reportable injury also requires that the individual receive medical attention at a location other than the location of the event. This distinction serves to exclude injuries that are treated only with first aid or other minor medical assistance at the scene.

Table 4 Injury Safety Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	259	286	266	270.33	13.36	17.02	13.92	14.66
Light Rail	115	94	97	102.00	21.77	16.50	15.22	17.64
Bus	306	371	384	353.67	14.32	17.93	18.37	16.85
The RIDE	28	21	30	33.00	3.41	2.48	3.21	3.03

Mode	2024 Target (count)	2024 Actual Performance (count)	% Difference	2024 Target (rate)	2024 Actual Performance (rate)	% Difference
Heavy Rail	170	266	56%	8.13	13.92	71%
Light Rail	79	97	23%	14.04	15.22	8%
Bus	252	384	52%	11.30	18.37	63%
The RIDE	23	30	30%	2.53	3.21	27%

Mode	Initial Severity	Initial Mitigation Effectiveness	Initial Risk Factor
Heavy Rail	Critical (2)	Limited (C)	Serious
Light Rail	Critical (2)	Adequate (D)	Medium
Bus	Critical (2)	Limited (C)	Serious
The RIDE	Critical (2)	Adequate (D)	Medium

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Heavy Rail / Light Rail / Bus	E&M will train employees and implement new requirements for Job Safety Analyses and pre-work Safety Briefings to manage employee injury risks.	E&M Director of Policy, Strategy, and Oversight	9/1/2026	Medium
Heavy Rail / Light Rail / Bus	The Safety Division's Occupational Safety Team will implement OSHA 10 and 30-hour training courses for employees in operations and maintenance through the end of the current fiscal year, covering topics including hazard recognition, avoidance, abatement, and prevention.	Director of Occupational Safety	7/1/2026	Medium

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Light Rail	Light Rail will pilot and evaluate deployment of Samsara camera systems on the Light Rail fleet to better identify and manage conditions with the potential to lead to fatalities, injuries, collisions, and assaults.	Assistant General Manager, Rail Operations	7/1/2026	Medium
Bus	Pending the outcome of a 2025 pilot, Bus Operations plans to deploy dual-facing dash cameras. These cameras use AI-driven event detection and feed events into a coaching workflow that managers use to address unsafe behavior. If the pilot is successful, Bus Operations will deploy systemwide.	Executive Director for Bus Operations	7/1/2026	Medium
The RIDE	Encourage customers to await driver assistance before alighting vehicle using in-vehicle signage and other communications.	Chief of Paratransit Services	6/1/2026	Medium
The RIDE	Revise policy to require drivers to assist customers before moving baggage or personal belongings, and to limit quantity of items customers can bring in the vehicle.	Chief of Paratransit Services	2/1/2026	Medium
The RIDE	Compile data on common injury types and review with contractors in regular safety meetings.	Chief of Paratransit Services	1/1/2026	Medium

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	180	9.50	265	14.37
Light Rail	95	17.00	100	17.29
Bus	303	14.30	347	16.51
The RIDE	25	3.00	32	2.97

MBTA safety committees continually meet to identify trends and analyze data to support injury reduction. Through Occupational Health and Safety (OHS) initiatives in the workplace, MBTA invests significant resources in employee health and safety.[6]

3.2.4 Safety Performance Measure: Transit Worker Injuries

Transit Worker Injuries are a subset of the overall injury targets for the authority and follow all of the FTA guidance listed above for Injuries with the additional scope narrowed to include all transit worker injuries defined by the NTD, including the categories "Transit Employee/Contractor", "Transit Vehicle Operator", and "Other Transit Staff".

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[6] Refer to the MBTA OHS Plan for further details regarding workplace safety initiatives and performance targets.

Table 5 Transit Worker Injury Safety Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	13	11	19	14.33	0.67	0.65	0.99	0.78
Light Rail	20	8	16	14.67	3.79	1.40	2.51	2.54
Bus	57	57	58	57.33	2.67	2.76	2.78	2.73
The RIDE	9	8	9	8.67	1.10	0.94	0.96	1.00

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	59	3.03	14	0.76
Light Rail	61	10.6	14	2.49
Bus	216	9.94	56	2.68
The RIDE	1	1.00	9	0.98

3.2.5   Safety Performance Measure: Safety Events

NTD defines a safety event involving one or more of the following:

- Collisions
- Fires (suppression)
- Derailments (mainline and yard) including non-revenue vehicles
- Hazardous Material Spills
- Acts of God
- Evacuation
- Other Safety Events (events that do not fall into any of the other categories, yet meet a reporting threshold other than immediate transport for medical attention for one person)[8]

The safety events measure captures events meeting NTD reporting thresholds that occur on MBTA right-of-way or infrastructure, at a revenue or maintenance facility, in a rail yard, during the performance of maintenance activities, or that involve a transit revenue vehicle. NTD reporting thresholds include fatalities, injuries requiring immediate medical attention away from the scene, derailment, substantial damage, and evacuation for life safety reasons.

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[8] The NTD Safety and Security Reporting Manual further define the term safety event and threshold reporting requirements.

Table 6 Safety Events Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	78	66	103	82.33	4.02	3.93	5.39	4.47
Light Rail	44	46	47	45.67	8.33	8.08	7.38	7.90
Bus	129	171	168	156.00	6.04	8.27	8.04	7.43
The RIDE	16	22	27	21.67	1.95	2.60	2.89	2.50

Mode	2024 Target (count)	2024 Actual Performance (count)	% Difference	2024 Target (rate)	2024 Actual Performance (rate)	% Difference
Heavy Rail	23	103	348%	1.11	5.39	386%
Light Rail	27	47	74%	4.74	7.38	56%
Bus	88	168	91%	3.93	8.04	105%
The RIDE	29	27	-7%	3.28	2.89	-12%

Mode	Initial Severity	Initial Mitigation Effectiveness	Initial Risk Factor
Heavy Rail	Critical (2)	Minimal (B)	Serious
Light Rail	Critical (2)	Limited (C)	Serious
Bus	Critical (2)	Limited (C)	Serious
The RIDE	Critical (2)	Adequate (D)	Medium

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Heavy Rail	The Safety Division will monitor implementation of derailment-related safety controls identified following derailments in 2024 and 2025, including improved circle checks, additional training, and improved identification of derailment risks in work zones.	Director of SMS and Safety Oversight	10/1/2026	Medium
Light Rail	Light Rail will pilot and evaluate deployment of Samsara camera systems on the Light Rail fleet to better identify and manage conditions with the potential to lead to fatalities, injuries, collisions, and assaults.	Assistant General Manager, Rail Operations	7/1/2026	Medium

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Light Rail	Operations will coordinate with the City of Boston and members of the JLMSC to identify and implement safety improvements at intersections and on street-running portions of the E branch. Activities will include deployment or replacement of standardized signage at designated crossings.	Chief of Staff, Chief Operating Officer, Green Line Division Chief, Director of SMS and Safety Oversight	9/1/2026	Medium
Light Rail	Assess feedback from managers and frontline employees on implementation of OTIP and refine program structure and process where appropriate.	Senior Director of Operating Rules Compliance	8/19/2026	Medium
Bus	Pending the outcome of a 2025 pilot, Bus Operations plans to deploy dual-facing dash cameras. These cameras use AI-driven event detection and feed events into a coaching workflow that managers use to address unsafe behavior. If the pilot is successful, Bus Operations will deploy systemwide.	Executive Director for Bus Operations	7/1/2026	Medium
The RIDE	This target was met in 2024; MBTA will continue applying existing controls to meet or exceed the target for CY 2026.	N/A	N/A	Medium

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	28	1.52	81	4.38
Light Rail	29	5.26	45	7.74
Bus	103	4.85	153	7.28
The RIDE	28	3.28	21	2.45

Through proactive and reactive safety risk management (SRM), MBTA strives to reduce the rate of safety events, which will support efforts to reduce fatalities and injuries, as well as damage to transit assets.

3.2.6 Safety Performance Measure: System Reliability

The system reliability measure expresses the relationship between safety and asset condition. The rate of vehicle failures in service, defined as mean distance between major mechanical failures, is measured as vehicle revenue miles operated divided by the number of major mechanical failures.[10] MBTA continues to invest in and plan for a highly reliable, safe operation of its public transportation system.

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

Table 7 System Reliability Safety Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	519	288	249	352.00	37,360	58,329	76,769	52,371
Light Rail	673	668	693	678.00	7,849	8,526	9,194	8,530
Bus	636	841	582	686.33	33,591	24,599	35,909	30,574
The RIDE	112	311	514	312.33	73,277	27,256	18,186	27,782

Mode	2024 Target (rate)	2024 Actual Performance (rate)	% Difference
Heavy Rail	49,000	76,769	57%
Light Rail	7,900	9,194	16%
Bus	28,500	35,909	26%
The RIDE	25,900	18,186	-30%

Mode	Initial Severity	Initial Mitigation Effectiveness	Initial Risk Factor
Heavy Rail	Minor (4)	Effective (E)	Low
Light Rail	Minor (4)	Effective (E)	Low
Bus	Minor (4)	Effective (E)	Low
The RIDE	Minor (4)	Adequate (D)	Low

Mode	Mitigations to Manage Performance	Responsible Party	Implementation Date	Residual Risk
Heavy Rail	This target was met in 2024; MBTA will continue applying existing controls to meet or exceed the target for 2025.	N/A	N/A	Low
Light Rail	This target was met in 2024; MBTA will continue applying existing controls to meet or exceed the target for 2025.	N/A	N/A	Low
Bus	This target was met in 2024; MBTA will continue applying existing controls to meet or exceed the target for 2025.	N/A	N/A	Low
Vehicle Maintenance (General)	Vehicle Maintenance will align reliability improvement programs to correspond with the annual Safety Plan performance tracking cycle.	Chief Mechanical Officer	12/31/2026	Low
The RIDE	Deploy and monitor data from software tools for automated/computer-supported pre-trip inspections and on-road failure management.	Director of Paratransit Operations	1/31/2026	Low

Mode	2025 Target (rate)	CY 2026 Target (rate)
Heavy Rail	49,000	53,418
Light Rail	8,200	8,701
Bus	28,500	31,185
The RIDE	25,900	28,338

3.2.7   Safety Performance Measure: Collisions

NTD defines a collision as a vehicle/vessel accident in which there is an impact of a transit vehicle/vessel with:

- Another transit vehicle,
- A non-transit vehicle,
- A fixed object,
- A person(s) (suicide/attempted suicide included),
- An animal,
- A rail vehicle,
- A vessel, or
- A dock.

Table 8 Collisions Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	4	3	7	4.67	0.21	0.18	0.37	0.25
Light Rail	10	11	10	10.33	1.89	1.93	1.57	1.79
Bus	86	110	123	106.33	4.03	5.32	5.89	5.07
The RIDE	16	22	27	21.67	1.95	2.60	2.89	2.50

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	10	0.51	5	0.25
Light Rail	16	2.75	10	1.75
Bus	96	4.36	104	4.97
The RIDE	17	3.00	21	2.45

Additional targets for Pedestrian Collision Rate and Vehicular Collision rate, a subset of the full Collisions Performance Targets, as required in the National Public Transportation Safety Plan are also set for CY2026.

Table 9 Pedestrian Collisions Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	1	3	4	2.67	0.05	0.18	0.21	0.14
Light Rail	2	7	2	3.67	0.38	1.23	0.31	0.63
Bus	6	17	14	12.33	0.28	0.82	0.67	0.59
The RIDE	0	0	1	0.33	0.00	0.00	0.11	0.04

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	7	0.37	3	0.14
Light Rail	5	0.92	4	0.62
Bus	35	1.62	12	0.58
The RIDE	0	0.00	1	0.04

Table 10 Vehicular Collisions Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	0	0	0	0.00	0.00	0.00	0.00	0.00
Light Rail	5	4	4	4.33	0.95	0.70	0.63	0.75
Bus	77	91	104	90.67	3.60	4.40	4.98	4.32
The RIDE	14	17	24	18.33	1.71	2.01	2.57	2.11

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	0	0.00	0	0.00
Light Rail	19	3.20	4	0.74
Bus	1,250	57.80	89	4.23
The RIDE	14	2.00	18	2.07

3.2.8 Safety Performance Measure: Assault on Transit Worker

In March 2023, the BIL required reporting of all assaults on employees, expanded the definition of assault, and defined Transit Worker. The April 2024 revision to the National Transportation Safety Plan added Assaults on Transit Workers as a new required measure.

The NTD defines an Assault on a Transit Worker as 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. For the purposes of this metric, the table below reflects Heavy Rail Transportation, Light Rail Transportation, Bus Transportation, and Other (including Transit Ambassadors, Maintenance personnel, and Transit Police).

Table 11 Assault on Transit Workers Performance Targets

Mode	2022 Actual Performance (count)	2023 Actual Performance (count)	2024 Actual Performance (count)	3-Year Rolling Average (count)	2022 Actual Performance (rate)	2023 Actual Performance (rate)	2024 Actual Performance (rate)	3-Year Rolling Average (rate)
Heavy Rail	0	77	43	40.00	0.00	4.58	2.25	2.17
Light Rail	0	37	36	24.33	0.00	6.50	5.65	4.21
Bus	0	324	503	275.67	0.00	15.66	24.07	13.14
The RIDE	0	4	4	2.67	0.00	0.47	0.43	0.31

Mode	2025 Target (count)	2025 Target (rate)	CY 2026 Target (count)	CY 2026 Target (rate)
Heavy Rail	28	1.49	39	2.13
Light Rail	29	5.15	24	4.13
Bus	103	4.75	270	12.88
The RIDE	1	0.00	3	0.30

Risks associated with Transit Worker Assault, as well as associated mitigation strategies and target dates to reduce the risk of assault, are documented in SRM Worksheets 126 A-D. MBTA's formal assessment of risks in this area was initiated to comply with FTA General Directive 24-1:

Required Actions Regarding Assaults on Transit Workers, issued September 25, 2024. Beginning in 2027, after MBTA has completed a full calendar year with formally-defined Transit Worker Assault targets in effect, this safety performance target will be included in the risk assessment and mitigation process defined in the safety risk reduction program. Assault risk assessment information was transmitted to FTA on December 26, 2024 and details of SRM 126 A-D were provided to DPU on July 31, 2025 in response to Request for Information PM-25-007.

In accordance with FTA requirements, when identifying safety risk mitigations for the safety risk reduction program related to assaults on transit workers, MBTA must consider deployment of assault mitigation infrastructure and technology on transit vehicles and in transit facilities, including barriers to restrict the unwanted entry of individuals and objects into the workstations of bus operators. These mitigations are a component of a comprehensive approach to assault mitigation adopted by the MBTA, which also includes:

- TPD policing, response, and civil citation capability
- Emergency response procedures
- Operator de-escalation training
- Video surveillance
- Vehicle locator systems
- Covert alarms and electronic distress signs
- Application of Crime Prevention Through Environmental Design (CPTED) principles
- Employee Assistance Program support for transit workers
- Public-facing communications on the harms of transit worker assault
- Enhanced security features in new and planned vehicle purchases

MBTA has developed and continues to refine its approach to transit worker assault mitigation in response to FTA guidance and frontline transit worker input.

3.2.9   Additional Safety Performance Measures

In addition to FTA-required safety performance targets, MBTA measures specific event types such as:

- Derailments
- Fire/Smoke Events

MBTA uses safety data reports and dashboards to trend safety performance measures against their associated targets.

3.3   SAFETY AND STATE OF GOOD REPAIR

State of Good Repair (SGR) standards are defined by the National Safety Program and National Transit Asset Management (TAM) System, found in 49 CFR Part 625. These programs set forth conditions when safety risk analysis must be performed on capital assets such as equipment, rolling stock, infrastructure, and facilities. MBTA documents safety performance objectives in the Transit Assessment Management (TAM) Plan based on this definition and makes informed investments to strive for SGR for all its assets.

3.4   COORDINATION WITH MPOS

MBTA disseminates and makes available safety performance targets to MassDOT and Metropolitan Planning Organizations (MPOs) to aid in the planning process. MBTA coordinates safety performance targets with the Boston Region MPO to the maximum extent practicable to assist Massachusetts and MPOs with the selection of Commonwealth-wide and regional safety performance targets. MBTA meets with MPOs on an annual basis for discussion of MBTA's safety performance targets.

4 ORGANIZATIONAL STRUCTURE & RESPONSIBILITIES

Effective implementation of SMS requires senior management's commitment to safety. Agency Leadership is committed to the goal of making MBTA as safe as it can be for everyone, starting with transforming the core values of the organization into a positive safety culture.

4.1 KEY SAFETY MANAGEMENT RESPONSIBILITIES

4.1.1 MBTA Board of Directors (Board of Directors)

The MBTA Board of Directors consists of nine members, including the Secretary of Transportation, a member appointed by the Mayor of Boston, and one member with municipal government experience appointed by the MBTA Advisory Board. The remaining members are appointed by the Governor; they include a rider and resident of an environmental justice population, and a person recommended by the President of the AFL-CIO.

The MBTA Board of Directors was informed of its role and responsibility in this Safety Plan.

The MBTA Board of Directors is required to approve the Safety Plan and its subsequent revisions using written verification.

4.1.2 Accountable Executive

The Accountable Executive, General Manager (GM) of the MBTA, is responsible for reviewing and approving the Safety Plan, ensuring there is sufficient human and capital resources to develop and maintain the Safety Plan, adoption of safety performance objectives, reviewing ongoing safety data reports, reviewing summary reports related to safety events, and overseeing MBTA's SMS. The Accountable Executive is accountable for ensuring action is taken to address substandard performance in MBTA's SMS. The Accountable Executive must implement safety risk mitigations for the safety risk reduction program that are included in the Transit Safety Plan and consider all other safety risk mitigations recommended by the Joint Labor-Management Safety Committee.

When the Accountable Executive decides not to implement a safety risk mitigation unrelated to the safety risk reduction program recommended by the Joint Labor-Management Safety Committee, the Accountable Executive must prepare a written statement explaining the decision and submit and present the explanation to the JLMSC and Board of Directors.

The Accountable Executive may delegate risk management decisions to senior management; however, the Accountable Executive is ultimately responsible for accepting safety risks or hazards at MBTA. Only the Accountable Executive may accept residual risk factors that are considered High in relation to MBTA's safety risk acceptance criteria. The Accountable Executive may also accept residual risk factors at all levels below High.

4.1.3 MBTA Chief Safety Officer

The GM has delegated to the MBTA Chief Safety Officer (CSO) the authority and responsibility to govern, administer, oversee, and monitor the safety plans and resulting safety programs, policies, rules, orders, implementation, and processes. The MBTA CSO reports directly to the GM on matters related to MBTA's SMS.

The MBTA CSO collaborates with MBTA management to ensure safe work practices, and interfaces with federal, state, and local authorities, and industry professional organizations. The MBTA CSO does not serve in other operational or maintenance capacities.

When an immediate and serious safety risk exists, the MBTA CSO has the authority and responsibility to order hazardous conditions corrected to acceptable levels or eliminated altogether. Accordingly, the MBTA CSO is also empowered to order the cessation of unsafe activities or operations that are evaluated as creating immediate and serious safety risks within the system. The MBTA CSO is authorized to conduct mandatory internal safety audits to determine conformance with this Safety Plan. The MBTA CSO may also perform or authorize announced or unannounced audits, reviews, inspections, or assessments for the purpose of identifying and eliminating unsafe practices, operations, or conditions not immediately corrected by MBTA management.

Along with the Accountable Executive, the CSO (jointly with the Chief Operating Officer) may accept residual risk factors that are considered Serious in relation to MBTA's safety risk acceptance criteria.

4.1.4 Agency Leadership

Agency leadership, including direct reports to the General Manager other than the MBTA CSO, who oversee aspects of the organization that have a direct interface with safety-related matters include the following:

- Chief Operating Officer (COO)
- Chief Administrative Officer (CAO)
- Chief Engineer
- Chief of Quality, Compliance, and Oversight
- Senior Advisor for Capital, Operations, and Safety
- Chief of Staff
- Chief of Stations
- Chief Legal Counsel
- Chief of Transit Police
- Chief Customer and Employee Experience Officer
- Chief of Policy and Strategic Planning
- Assistant General Manager for Systemwide Accessibility

4.1.4.1 Chief Operating Officer

The MBTA COO is responsible for the complete oversight for all modes and all associated support departments for bus, paratransit, ferry, light, heavy and regional rail services. With the exception of Facilities Maintenance, which reports to the Chief of Stations, all operational and maintenance departments at the MBTA report to the COO.

4.1.4.2 Chief Administrative Officer

The MBTA CAO is responsible for MBTA's financial and administrative functions. The CAO oversees finance, human resources, labor relations, and other administrative departments.

4.1.4.3 Chief of Engineering and Capital

MBTA's Chief of Engineering and Capital is responsible for the safe engineering and delivery of the MBTA capital program, including project planning, engineering, and execution of the Authority's infrastructure programs in the Capital Investment Plan (CIP). These investments include repair, modernization, expansion, and acquisition of the Authority's infrastructure, facilities, revenue vehicles and other capital investments including IT, fare collection, security and communications systems, non-revenue vehicles, major equipment and other capital investments.

4.1.4.4 Chief of Quality, Compliance, and Oversight

MBTA's Chief of Quality, Compliance, and Oversight is responsible for overall management of MBTA's actions in response to the ongoing FTA Safety Management Inspection response, as well as MBTA's Quality Management function.

4.1.4.5 Senior Advisor for Capital, Operations, and Safety

The Senior Advisor for Capital, Operations, and Safety is responsible for leading decision-making within the Rail Operations function on matters related to capital, operations, and safety.

4.1.4.6 Chief of Staff

The MBTA General Manager's Chief of Staff is responsible for interfacing with the Accountable Executive and senior leadership team on matters related to safety, supporting and coordinating the development and execution of major safety initiatives.

4.1.4.7 Chief of Stations

MBTA's Chief of Stations is responsible for developing and implementing strategies to maintain and improve station conditions across all modes, including coordination with MBTA's maintenance and capital functions.

4.1.4.8 Chief Legal Counsel

The MBTA Chief Legal Counsel provides strategic direction, business partnership, and day-to-day legal counsel, representation and support to the MBTA's General Manager and senior management team involving a broad range of complex legal, business and operations issues. The Chief Legal Counsel is responsible for all legal matters involving the MBTA as well as labor negotiations and contracts.

4.1.4.9 Transit Police Chief

The MBTA Transit Police Chief is responsible for providing public safety, security, and law enforcement services to MBTA. The MBTA Transit Police Department (TPD) is a civil service police department with full police powers within the cities and towns in the MBTA's service area.

4.1.4.10 Chief Customer and Employee Experience Officer

MBTA's Chief Customer and Employee Experience Officer heads MBTA's Customer and Employee Experience function, and is responsible for major methods of communication with employees and customers including T-STOP, TCOMMS communication screens, the Between the Lines employee newsletter, and in-station video messaging screens.

4.1.4.11 Chief of Policy and Strategic Planning

MBTA's Chief of Policy and Strategic Planning is responsible for MBTA's strategic plan and associated goals and objectives, as well as other rider-facing policies including fares, civil rights, and service policy.

4.1.4.12 Assistant General Manager of Systemwide Accessibility

MBTA's Assistant General Manager of Systemwide Accessibility is responsible for accessibility improvements as well as vision and strategy for expanding the accessibility and inclusiveness of the MBTA system, development of standards and guidelines, design review, community engagement, and accessibility auditing.

4.1.5 MBTA Executive Management[11]

MBTA executive management is responsible for the implementation, success, and continual monitoring of the Safety Plan objectives and ensuring integration of SMS processes within all MBTA divisions, departments, working groups, committees, and activities. MBTA executive management personnel may serve as members of the SMRC, JLMSC, Modal Committees, and other relevant committees. They are responsible for continuously reviewing safety performance and trends, assessing and monitoring identified risks, and recommending data-driven solutions in line with MBTA goals and objectives.

4.1.6 MBTA Frontline Management[12]

MBTA frontline management reports to their department's executive management and may also be members of Modal Committees, Local Safety Committees, task teams, and roundtable discussions. At an individual level, they are model examples of management committed to valuing safety and are expected to manage safety issues brought forth by employees and contractors on a daily basis. Frontline management is responsible for developing, implementing, and maintaining SMS processes within his/her area of responsibility which includes:

- Hazard identification and safety risk assessment

- Assuring the effectiveness of safety risk mitigations

- Promoting safety

- Reviewing and monitoring safety performance through data and trends

- Escalating issues that cannot be resolved and decisions that cannot be made at their level

When a safety concern is brought to management, the issue must be seriously considered and, if warranted, investigated. Thus, MBTA management is empowered to utilize safety risk management techniques and implement risk mitigation strategies to preserve safe operation of the system on a daily basis.

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[11] *E.g.*, chiefs, deputy chiefs, department managers, directors, and deputy directors.
[12] *E.g.,* facility managers, forepersons, inspectors, and frontline or facility supervisors.

4.1.7   MBTA Safety Division

MBTA Safety Division staff are responsible for corporate oversight of the safety processes and objectives described within the Safety Plan, and for providing corporate safety guidance to MBTA management, labor, and contractors in working to achieve safety performance objectives.

4.1.8   All MBTA Employees & Contractors

All employees and contractors are responsible for safety within MBTA. Every employee and contractor, whether senior management or a new-hire, must consider the safety implications of everything they do. Employees and contractors are expected to promptly report any hazards, unsafe conditions, safety events, or injuries while on the job through the appropriate investigation forms, the Safety Hotline, the Safety Hotline Portal, or the Safety Hotline email address. Employees and contractors are also encouraged to submit safety recommendations for improvement without fear of reprisal or disciplinary action.

4.2   SAFETY MANAGEMENT COMMITTEE STRUCTURE

Safety communication is an essential SMS principle that establishes a two-way feedback loop between frontline employees and management about safety information. As demonstrated in Figure 4, MBTA uses a committee structure, in coordination with the Accountable Executive, to ensure communication is achieved at all levels of the Authority.

Meetings for the safety committees have strategic as well as tactical purposes, depending on the level of the committee. All employees, from frontline to executive management, are encouraged to attend safety committees at all levels. Each safety committee utilizes an agenda balanced around relevant SMS components, as such, topics covered in each committee vary based on the committee's charter. Examples of agenda items include open safety concerns, safety promotion materials, safety risk management activities, SRM workshop reviews, and safety investigations.

Figure 4: Safety Management Committee Structure

4.2.1   Safety Management Review Committee (SMRC)

The purpose of the SMRC, MBTA's senior-most safety committee, is to collaboratively review, discuss, analyze, and address safety concerns, findings, regulations or programs, and other safety-related issues brought to them by the various working groups and committees as well as matters assigned to them by the JLMSC and/or the GM. The SMRC functions as the senior technical review of safety matters affecting or having the potential to affect the MBTA. The SMRC may direct the formation of committees and/or working groups to evaluate safety-related matters and report back to the SMRC.

The SMRC provides a summary of their review and recommendations to the GM. Where Agency Leadership approval is required, the SMRC requests approval from the GM.

The committee is facilitated by the MBTA CSO and is comprised of the following executive management representatives:

- Chief Operating Officer
- Chief of Engineering and Capital
- Chief of Stations
- Chief of Infrastructure
- Assistant General Manager of Systemwide Accessibility
- Chief Financial Officer
- Chief Risk Officer
- Chief Mechanical Officer

- Chief Administrative Officer
- Chief of Quality, Compliance, and Oversight
- Chief of Policy and Strategic Planning
- Chief Workforce Officer
- Chief of Staff, MBTA General Manager

The MBTA CSO ensures meeting agendas and minutes are documented and distributed, and safety items are logged, and resolutions are tracked. Representatives from interdepartmental working groups provide summary updates on issues and progress to the SMRC and submit proposed plans, procedures, policies, reports for review and approval.

The SMRC meets regularly (typically every month but the schedule may be adjusted based on needs) and reports updates, recommendations, and requests for approval to the GM.[13]

4.2.2 Joint Labor-Management Safety Committee (JLMSC)

The JLMSC is an interdepartmental level group of equal executive management and union representation (with five individuals drawn from each group) whose meetings are scheduled and facilitated by a director (or equivalent) within Safety. The five union members of the committee represent different transit service functions and are members of labor unions representing the plurality of MBTA's frontline workers. Additional non-voting members may be appointed to the JLMSC to lend professional expertise. The JLMSC meets to discuss cross-departmental safety issues and to review findings, recommendations, and trends escalated from Modal Committees.

The primary mission of the JLMSC is to reinforce safety as a core value at the executive management level and demonstrate a commitment to SMS principles by: convening meetings to review and discuss issues related to the safety of operating vehicles and related facilities (e.g., NTSB recommendations; hazards); evaluating safety performance against stated objectives; making data-driven decisions and recommendations; ensuring implementation of the MBTA Transit Safety Plan; maintaining an action item matrix; recording meeting minutes; conducting reviews and safety assessments; developing solutions; and making recommendations to the SMRC.

The JLMSC fulfills the role of the safety committee defined by the Bipartisan Infrastructure Law and 49 CFR Part 673. As such, the JLMSC:

- Establishes MBTA's performance targets for the risk reduction program using the 3-year rolling average of the data submitted to the National Transit Database.
- Identifies and recommends safety risk mitigations necessary to reduce the likelihood and severity of potential consequences identified through safety risk assessments, including safety risk mitigations associated with any instance where the transit agency did not meet an annual safety performance target in the safety risk reduction program.
- Identifies safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended, including safety risk mitigations associated with any instance where the transit agency did not meet an annual safety performance target in the safety risk reduction program.
- Identifies safety deficiencies for purposes of continuous improvement, including any instance where the transit agency did not meet an annual safety performance target in the safety risk reduction program.

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[13] Refer to the SMRC Charter for further information about committee organization and structure.

- Reviews and approves the Transit Safety Plan annually (and after any updates), prior to approval by the MBTA Board of Directors.

Mitigations identified and recommended by the JLMSC are documented in the Committee's Safety Concerns Log, in the MBTA Hazard Tracking System, in completed Safety Risk Management worksheets, and in minutes recording JLMSC meeting activities.

Complete procedures regarding the composition, responsibilities, and operations of the JLMSC are contained within the JLMSC Charter, and include:

- The organizational structure, size, and composition of the committee and how it is chaired.
- How meeting agendas and notices are developed and shared, and how meeting minutes are recorded and maintained.
- Required trainings for JLMSC committee members.
- The compensation policy established by MBTA for participation in JLMSC meetings.
- How the JLMSC accesses technical experts, transit agency information, resources, and tools, as well as Safety Hotline reporting information, to support its deliberations.
- How decisions are reached and recorded.
- How the JLMSC coordinates with MBTA's General Manager and Board of Directors.
- How disputes are managed and resolved.
- How the JLMSC carries out its responsibilities.

4.2.3   Modal Committees

Modal Committees are organized around a mode or departmental division – such as Rail (Subway Accident Reduction Committee or SARC), Bus (Bus Accident Reduction Committee or BARC), or Engineering & Maintenance (E&M Safety Meeting) – whose meetings are scheduled and facilitated by mode or division management in coordination with a Safety Division deputy director. They meet to review safety performance indicators and trends that are aggregated by data analysts and that may be elevated from the Local Safety Committee level. These groups, made up of a combination of departmental executive management, frontline management, and data analysts, review and analyze safety statistics against key performance indicator goals, safety performance objectives and targets, investigations and findings, risk assessments, corrective action plans, system changes, training offerings, and safety communications. When issues cannot be addressed at this level, or if they are determined to possibly affect multiple modes or departments, key findings from specific Modal Committees may be elevated to the JLMSC for further consideration or resolution as needed. Findings, decisions, and information that are produced as an output of Modal Committees are also distributed back down to Local Safety Committees for information sharing purposes with frontline management and frontline staff.

4.2.4   Local Safety Committees

Local Safety Committees are formed to discuss safety-related issues at the management-labor level; they are often organized around and held at a specific area, line, or facility. Regular meetings are scheduled and facilitated by the respective frontline management and/or their designee at employee locations and include supervisors, forepersons, officials, union representatives, and employees. Meeting minutes and action items are recorded and tracked by each respective department to resolution, using a consistent format implemented and overseen by the Safety Division. Local Safety Committees address those items for which they have

authority and then raise issues that cannot be resolved at this level or that are identified as a safety trend or performance issue to the appropriate Modal Committee for further review. Local Safety Committees also act as a vehicle of communication to frontline employees by reporting out relevant information shared from higher level committees regarding hazards, risks, safety performance, and mitigations.

Safety Division staff are responsible for monitoring the performance of Local Safety Committee meetings, ensuring that meetings are consistently held according to defined schedules, ensuring that meetings are adequately promoted to employees in each respective work area or location, and ensuring that all meetings are fully documented through preparation of meeting minutes and action item tracking logs. MBTA's safety communication activities include ongoing promotion of the Local Safety Committee structure, opportunities for participation, and elevation of case studies to demonstrate program effectiveness.

5 SAFETY RISK MANAGEMENT

SRM is a formal process for identifying hazards and analyzing, assessing, and mitigating safety risks of their potential consequences, when necessary, to prevent future safety events.

SRM identifies hazards and mitigates risk during operation, including hazards resulting from subsequent system extensions, modifications, operational or environmental changes, or hazards discovered during reviews, inspections, or investigations. The SRM process is reactive, proactive, and predictive. It can also prioritize the resulting process improvements to ensure the best allocation of MBTA resources.

An effective SRM process is essential to understand the safety impacts of operations and maintenance procedures, engineering change proposals, construction change orders, operational equivalencies, and temporary permits and certificate issuance. Hazard information will be managed through the entire SRM process as described in the left column in Figure 5.[14]
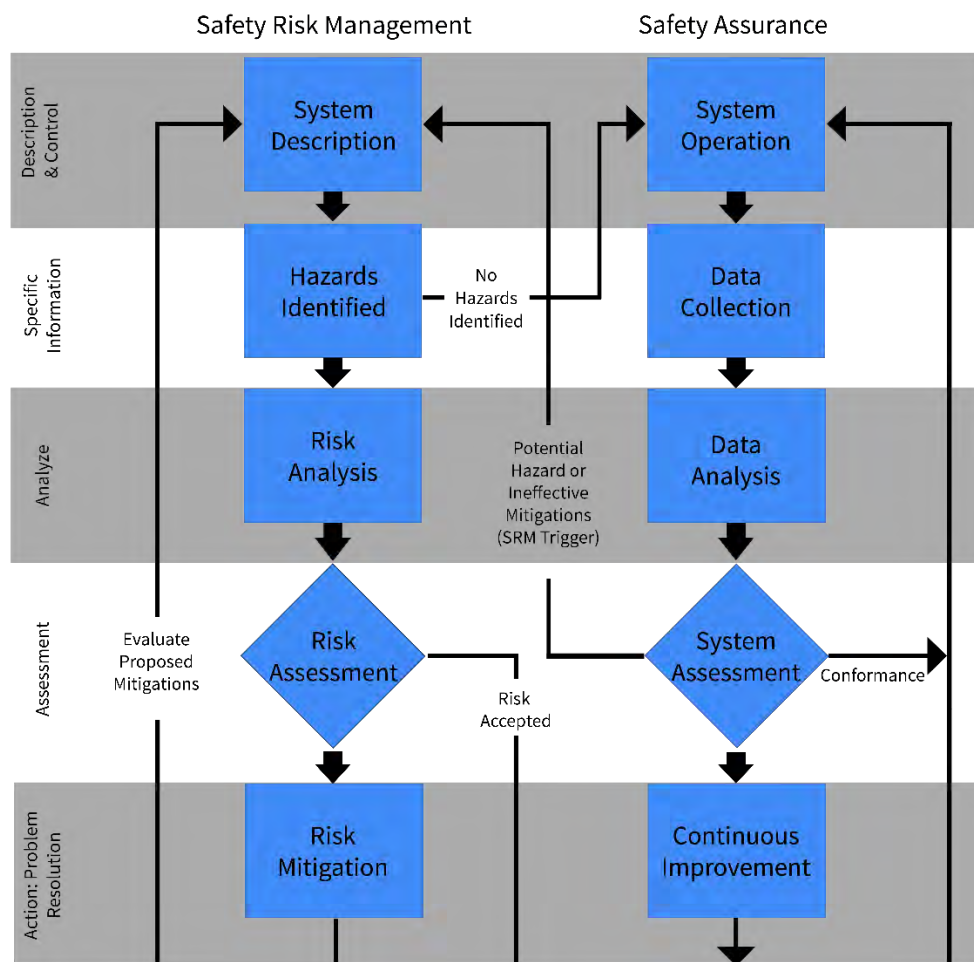

Figure 5: Safety Management Decision-making Process

[14] Refer to the Safety Risk Management Standard Operating Procedure (SOP) for further information on the step-by-step SRM process.

5.1   APPLICATION OF SAFETY RISK MANAGEMENT

MBTA departments must apply SRM to the following items (known as the ten triggers) throughout all elements of the transit system:

1. Design and implementation of new systems, equipment, and capital projects

2. Changes to existing systems, equipment, and infrastructure

3. New operations of service to the public

4. New operations or maintenance procedures

5. Changes to operations or maintenance procedures

6. Organizational changes, including Agency Leadership and Accountable Executive changes

7. Procurement process

8. Identification of hazards or ineffective risk mitigations through safety assurance activities.

9. Safety issues escalated by the Safety Division from the Employee Safety Reporting Program

10. Safety issues escalated from the Local Safety Committee process.

5.1.1   Design and Implementation of New Systems and Other Capital Projects

Technology and innovation are changing the way people interact with their transit system. The MBTA is in a constant state of design and implementation of new systems and other capital projects. MBTA's Safety and Security Certification Program addresses the comprehensive SRM process when new systems or other capital projects are proposed on or near the MBTA transit system.

5.1.2   Changes to Existing Systems

MBTA's SRM process and Safety and Security Certification Program process (depending on the scope of the change) address existing systems that are modified on or near the MBTA transit system. MBTA departments address change management through the utilization of these processes.

5.1.3   New Operations of Service to the Public

Prior to beginning new operations of service to the public, MBTA departments are required to use a methodology for conducting SRM consistent with this Safety Plan to ensure hazards and risks are identified and controlled to an acceptable level of safety. This is addressed through the SRM process.

5.1.4   New Operations or Maintenance Procedures

MBTA departments implementing new operations or maintenance procedures will be required to use a methodology for conducting SRM consistent with this Safety Plan to ensure hazards and risks are identified and controlled to an acceptable level of safety. The Occupational Health and

Safety (OHS) Work Assessment or SRM worksheet process may be used when MBTA employees or contractors use new equipment or perform new job tasks.[15]

5.1.5 Changes to Operations or Maintenance Procedures

MBTA departments periodically review and update existing operations and maintenance procedures to ensure an acceptable level of safety is achieved. Changes to these procedures are addressed through the SRM process and/or OHS Work Assessment process, as appropriate.

5.1.6 Organization Changes, Including Agency Leadership and Accountable Executive Change

MBTA organizational changes may have an impact on the SMS. For instance, MBTA procuring new contractor services may result in a review of the contractor's SMS that triggers the SRM process.

Agency leadership and Accountable Executive changes prompt the MBTA Safety Division to perform a transition action plan to allow new agency leadership or Accountable Executive personnel to fully understand their role in the SMS. Agency leadership and Accountable Executive changes prompt a review of the departing employee's safety management responsibilities and ensure new personnel are trained in SMS and understand their accountability in the SMS.

5.1.7 Procurement Process

The procurement process ensures new vehicles, rolling stock, systems, equipment, and other materials are systematically reviewed and verified for compliance with safety requirements prior to purchase, implementation, and use. The procurement process is documented through the MBTA Procurement Manual and, depending on procurement scope, may use the Safety and Security Certification Program, SRM process, or internal procurement processes to review safety risks.

5.1.8 Identification of Hazards or Ineffective Risk Mitigations Through Safety Assurance Activities

MBTA deploys different safety assurance activities throughout the Authority. When a hazard or ineffective risk mitigation is identified through compliance- or performance-based safety assurance activities, the MBTA department will be required to use a methodology for conducting a SRM assessment consistent with this Safety Plan to ensure hazards and risks are identified and controlled to an acceptable level of safety.

5.1.9 Safety issues escalated by the Safety Division from the Employee Safety Reporting Program

MBTA applies the SRM process to notable issues, trends, and patterns identified through the Employee Safety Reporting Program (Safety Hotline/Safety Hotline Portal). In consultation with Safety staff, and in consideration of risk ratings applied to the reports, the Deputy Director of Safety Risk Management performs an initial review of the event or events to determine whether a Job Hazard Analysis, safety certification activity, or SRM workshop may be warranted.

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[15] Refer to the MBTA JHA Program for further information.

5.1.10 Safety issues escalated from the Local Safety Committee process

MBTA applies the SRM process to notable issues, trends, and patterns identified through the Local Safety Committee structure. The Deputy Director of Safety Assurance & Promotion, in consultation with Safety management and more-senior safety committees including Modal committees and the JLMSC, conducts an initial review to determine whether an OHS Work Assessment, safety certification activity, or SRM workshop may be warranted.

5.2 SAFETY RISK MANAGEMENT PROCESS

MBTA uses several methodologies for conducting SRM based on the type of trigger referenced above. These are outlined in more detail in the Safety Assessment Decision Tool in the appendices to this plan. The SRM process consolidates all hazard information developed pursuant to the various methodologies for identifying and assessing safety risks into a single Hazard Tracking System (HTS).

For all transit safety events, safety risks, and capital projects (including infrastructure, facility, equipment, and systems projects, procurements, and acquisitions), MBTA uses the following process.

5.2.1 Document the System Description and Task Analysis

SRM begins with a system description, which includes a task analysis. A system is defined as operational components used to deliver transit related services. Systems may include hardware, software, people, procedures, resources, or functions directly related to the delivery of rail transit services.

The first step is to understand the aspects of the operation that might cause harm. When documenting the system description and task analysis, one may consider:

1) Ambient environment (e.g., physical conditions, weather);
2) Equipment (hardware and software);
3) External services (e.g., contract support, electric, telephone lines);
4) Human–machine interface;
5) Human operators;
6) Maintenance procedures;
7) Operating environment (e.g., temporary speed restrictions, automatic train control);
8) Operational procedures;
9) Organizational culture;
10) Organizational issues; and
11) Policies/rules/regulations.

Describing the system or task should thoroughly explain the functions and interactions among the hardware, software, people, departments, and environment that make up the system in sufficient detail to identify hazards and perform risk analyses. Brainstorming sessions with working groups or committees of subject matter experts are often the most effective means of performing this step in the SRM process.

5.2.2 Identify and Document Hazards

Hazard identification enables visibility into the complete spectrum of hazards impacting MBTA's operations. It ultimately allows for analysis of the risks associated with the hazard and the subsequent elimination of the hazard or reduction of its risks to an acceptable level. While the

identification of every conceivable hazard is impossible, all employees must exercise due diligence to identify hazards related to their operations. These hazards may be existing or have the potential to manifest.

Hazards are identified considering system hardware and software, system interfaces (to include human interfaces), and the intended use or application and operational environment. Consider and use safety event/near miss data; relevant environmental and occupational health data; user physical characteristics; user knowledge, skills, and abilities; and lessons learned from legacy and similar systems. The hazard identification process considers the entire system lifecycle and potential impacts to personnel, infrastructure, systems, the public, and the environment. Identified hazards are documented in the HTS.

5.2.2.1   Reactive Hazard Identification

MBTA has reactive methods of hazard identification that may have contributed to a safety event. These reactive processes include investigating safety events, close call reports, and regulatory violations. MBTA's reactive methodologies are shown below:

- Mandatory DPU and FTA-reportable events described in this Safety Plan
- Employee Safety Reporting Program (Safety Hotline/Safety Hotline Portal)
- Safety event investigation reports
- Findings from external audit process described in this Safety Plan, including inspection findings issued by FTA, DPU, or APTA
- TAM Assessments

5.2.2.2   Proactive Hazard Identification

MBTA also has proactive methods of hazard identification. Proactive methods attempt to identify and analyze hazards before they result in a safety event. MBTA's proactive methodologies include:

- SRM Worksheets
- Safety and Security Certifications
- Configuration Management
- Employee Safety Reporting Program (Safety Hotline/Safety Hotline Portal)
- QA/QC data and inspections
- Safety data collection and reporting
- OHS Work Assessments
- Safety Rules Compliance Program (SRCP)
- Safety Quality Assurance Audits
- The internal safety audit process described in this Safety Plan
- Data, information, and reports from other properties, outside consultants, DPU, APTA, FTA, NTSB, and the FRA
- TAM Assessments

- Data and information regarding exposure to infectious disease provided by the CDC or state health authorities

- Continuous review of operational data and trend analyses to proactively identify hazards as described in this plan[16]

If the group conducting the SRM cannot identify any hazards to the system, document the disposition at which point a safety assurance activity should be considered.

5.2.3 Risk Analysis

Trained personnel, including subject matter experts from impacted functions and/or Safety Division staff, will evaluate each identified hazard, and the system state(s) in which it exists, to determine the worst-case, most reasonable, believable consequence(s) may result from the hazard. Risk analysis will apply to events or conditions that may cause a reduction in system operability or safety levels (triggering mechanism). Each hazard is analyzed to determine its potential consequence(s) to cause damage or harm, known as risk.

The severity of each consequence is determined by its worst credible (reasonable or believable) outcome. MBTA employees trained in SRM select the most appropriate severity category based upon the potential consequence identified. For instance, if the potential consequence is a collision, the severity category is "Safety Event". After a severity category is identified, the trained employee(s) select the description of the severity level that most closely matches the potential consequence. This exercise is used for each potential consequence documented for each hazard.

The likelihood of the severity of the consequence is not considered during this step. A chart explaining the severity levels is shown in Table 12.

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[16] Operational data may include, but is not limited to: OCC daily logs, passenger reports, and personnel reports.

Severity (Most reasonable, believable, worst-case scenario)

Severity Level / Severity Category	Catastrophic (1)	Critical (2)	Moderate (3)	Minor (4)	Low (5)
Regulatory (e.g., Internal/ External Audits, Non-Compliance)	Serious safety concern attributable to a direct non-compliance with regulations that will affect safety.	Finding which results from a direct non-compliance with regulations applicable to MBTA that could affect safety.	Finding which results from a non-compliance with MBTA policy and procedures that reference regulations applicable to MBTA (i.e., a requirement derived from a directly applicable Rule.)	General safety concern that may lead to non-compliance with MBTA policy or procedure(s).	No Findings.
Safety Event	**Persons:** 1+ fatality and/or 3+ injuries. **Property:** Unrepairable damage or damage > $15M.	**Persons:** 2+ injury. **Property:** Damage that disrupts operations and costs < $15M.	**Persons:** 1+ injury. **Property:** Damage that disrupts operations and costs < $1M.	**Persons:** Harm requiring first aid or minor medical treatment on-scene. **Property:** Damage that disrupts operations and costs < $500K.	**Persons:** Harm requiring no medical treatment, or no reported injury. **Property:** Damage that does not disrupt operations.
Operational Event or Near Miss (Not Meeting Safety Event Criteria)	Event resulting in emergency operational conditions, impacting the immediate safe operation of a vehicle.	Event resulting in abnormal conditions, impacting the continued safe operation of a vehicle. Safety event potential.	Event resulting in abnormal conditions with potential to impact the safe operation of a vehicle. Safety event potential.	Event resulting in abnormal conditions with potential to impact the safe operation of a vehicle.	Event resulting in normal conditions with potential to impact the safe operation of a vehicle. Safety margin degraded.

Table 12 Risk Severity Categories and Levels

The likelihood of outcomes is determined by quantitative analysis, historical event information, or by expert opinion in the absence of other data. When quantitative frequency or rate data is not available, reliance upon the qualitative text descriptions in Table 13 is necessary and appropriate. When determining the probability level, the frequency of the selected consequence's severity level is considered when the identified hazard is present or encountered. For example, if a severity level of Catastrophic is selected for a derailment (consequence) related to conflicting speed signs (hazard), the individual/group must then determine how often the derailment will occur when conflicting speed signs are encountered by a motorperson. A chart explaining the likelihood and mitigation effectiveness definitions is shown in Table 13.

Note that the Eliminated (F) likelihood category is used only when a potential hazard has been identified and eliminated (e.g., through design or engineering). Generally, this category will occur only in design work for planned capital projects and is unlikely to be used for hazards identified within the operational environment.

Events	Conditions		
(a consequence which already occurred) **(Mitigation Effectiveness)** What was the effectiveness of the remaining mitigations within this event and the most reasonable, believable, worst-case scenario?	**(a potential consequence that may occur)** **(Likelihood)** How often will the selected consequence's severity level occur when the identified hazard is present/encountered during normal operating conditions? Consider the effectiveness of existing mitigations.		
	Qualitative – Specific Item	**Qualitative – Fleet/Inventory**	**Quantitative**
Not Effective (A): Remaining mitigation were ineffective, or no mitigations remained. The only thing separating this event from a fatal safety event was pure luck or exceptional skill, which is not trained or required.	**Frequent (A):** Likely to occur often in the life of an item	**Frequent (A):** Continuously experienced	**Frequent (A):** Likely to occur more than 100 times per year
Minimal (B): Some mitigations left but their total effectiveness was minimal.	**Probable (B):** Will occur several times in the life of an item	**Probable (B):** Will occur frequently	**Probable (B):** Likely to occur between 10 and 100 times per year
Limited (C): An abnormal situation, more demanding to manage, but with still a considerable remaining safety margin.	**Occasional (C):** Likely to occur sometime in the life of an item	**Occasional (C):** Will occur several times	**Occasional (C):** Likely to occur between 10 times per year and once every 3 years
Adequate (D): Consisting of several good mitigations.	**Remote (D):** Unlikely, but possible to occur in the life of an item	**Remote (D):** Unlikely but can reasonably be expected to occur	**Remote (D):** Likely to occur one time every 4 to 10 years
Effective (E): All mitigations in place and working as intended.	**Improbable (E):** So unlikely, it can be assumed occurrence may not be experienced in the life of an item	**Improbable (E):** Unlikely to occur, but possible	**Improbable (E):** Likely to occur less than once every 10 years
	Eliminated (F): Incapable of occurrence because the potential hazard has been identified and eliminated		

Table 13 Risk Probability Levels

The risk severity and risk probability levels presented in Tables 12 and 13 are specifically tailored for the MBTA operational environment. Capital projects may elect to define modified risk severity and risk probability level thresholds that more appropriately reflect risk to the specific project scope.

Risk determination follows a simple three step process, considering: 1) condition (hazard); 2) potential consequence (worst case (reasonable/believable) scenario); and 3) risk (severity and likelihood/mitigation effectiveness of the potential consequence).

5.2.4   Risk Assessment

The risk assessment process allows MBTA to establish risk management priorities and drive risk reduction activities by establishing and standardizing the significance or value of hazards and areas of risk. Assessed risks are expressed as a risk factor which is based on a combination of one severity level and one probability level as assigned in Table 14. For example, a Catastrophic severity level and a Frequent probability level equates to a High risk factor.

Event/Condition	Catastrophic (1)	Critical (2)	Moderate (3)	Minor (4)	Low (5)	Mitigation Effectiveness
Frequent (A)	High	High	Serious	Serious	Medium	Not Effective (A)
Probable (B)	High	Serious	Medium	Medium	Medium	Minimal (B)
Occasional (C)	High	Serious	Medium	Medium	Low	Limited (C)
Remote (D)	Serious	Medium	Medium	Low	Low	Adequate (D)
Improbable (E)	Medium	Medium	Low	Low	Low	Effective (E)
Eliminated (F)	Eliminated					

Table 14 Risk Assessment Matrix

- High Risk (Red): Severity-probability levels of 1A, 1B, 1C, and 2A

- Serious Risk (Orange): Severity-probability levels of 1D, 2B, 2C, 3A, and 4A

- Medium Risk (Yellow): Severity-probability levels of 1E, 2D, 2E, 3B, 3C, 3D, 4B, 4C, 5A, and 5B

- Low Risk (Green): Severity-probability levels of 3E, 4D, 4E, 5C, 5D, and 5E

5.2.5   Risk Mitigations & Acceptance

After hazards, consequences, and risks are fully understood from the preceding steps, risk mitigations must be designed and implemented, if necessary. MBTA operational and maintenance departments responsible for implementing risk mitigations participate in the development of those risk mitigations. Risk mitigations may be discrete or continuous. A discrete mitigation is an activity with a readily identifiable implementation period, which can be verified and closed out by Safety; examples of discrete mitigations include equipment modifications or installations. A continuous mitigation is a procedural change that the MBTA engages to reduce risk that cannot be closed out due to its ongoing nature; examples of continuous mitigations include policy or program changes. Both discrete and continuous mitigations are part of the MBTA's multi-layered strategy towards risk reduction.

A mitigation's goal should be to eliminate the hazard, if possible. When a hazard cannot be eliminated, the associated risk should be reduced to the lowest acceptable level within the constraints of cost, schedule, and performance by applying the hierarchy of risk mitigations.

MBTA must consider as a source for safety risk mitigations:

- Guidance provided by the DPU and FTA
- Guidelines to prevent or control exposure to infectious diseases provided by the CDC or state and local health authorities

When identifying safety risk mitigations for the safety risk reduction program related to vehicular and pedestrian safety events involving transit vehicles, MBTA considers mitigations to reduce visibility impairments for transit vehicle operators that contribute to safety events, including retrofits to vehicles in revenue service and specifications for future procurements that reduce visibility impairments.

5.2.5.1   Hierarchy of Risk Mitigations

The order of preference used in resolving hazards at MBTA is as follows:

- **Design to Eliminate Hazard**: Hazards are reduced through design, redesign, refurbish, or retrofit to eliminate the hazards through design selection, which may be accomplished through the use of fail-safe devices and principles in design, the incorporation of high-reliability systems and components, and the use of redundancy in hardware and software design.
- **Substitution:** Hazards are reduced through replacement the system or equipment that produces a hazard with a system or equipment that does not produce a hazard. The new substitute system or equipment should not produce a different hazard more risky than the initial hazard.
- **Engineering Controls:** Hazards that cannot be eliminated or substituted are controlled to an acceptable level using fixed, automatic, or other protective safety design feature or device. Examples of safety devices include interlock switches, protective enclosures, or machine guards. Care must be taken to ascertain that the operation of the safety device reduces the loss or risk and does not introduce additional hazards. Safety devices also permit the system to continue to operate in a limited manner. Provisions are made for periodic functional checks of safety devices.
- **Warning Devices:** When neither design nor safety devices can effectively eliminate nor control an identified hazard, devices are used to detect the condition and generate an adequate warning signal to correct the hazard or provide for remedial action such as evacuation. Warning signals and their application are designed to minimize the probability of incorrect personnel reaction to the signals are standardized within similar systems.
- **Procedures and Training:** Where it is impossible to eliminate or adequately control a hazard through design selection or use of safety and warning devices, procedures and training are used to control the hazard. Procedures may include the use of personal protective equipment. Safety critical tasks, duties, and activities throughout MBTA, such as rail vehicle operators' duties, require organization certification of personnel proficiency.
- **Personal Protective Equipment (PPE):** PPE is the least effective means of controlling hazards and should only be used in addition to other risk mitigations. PPE may be used if MBTA cannot feasibly design, substitute, or control a hazard to an acceptable level.

5.2.5.2 Residual Risk

MBTA personnel who are trained in SRM and understand the nature of the specified hazard must evaluate whether the risk is acceptable given the proposed safety risk mitigation, prior to implementation of the safety risk mitigation. Personnel trained in the SRM process document an anticipated residual risk, which is the risk factor after a risk mitigation is implemented. Once the risk mitigation is implemented and evaluated for effectiveness (using safety assurance activities), personnel can then document the actual residual risk.

If no risk mitigation is implemented, the original baseline risk assessment becomes the residual risk and is documented within the hazard tracking system.

5.2.5.3 Substitute Risk

Highly effective risk mitigations may generate new risks. After these mitigations are designed but before they are implemented, an assessment must be completed to determine the likely effectiveness or the introduction of new hazards to the system. The latter condition is referred to as "substitute risk," and initiates a subsequent SRM process.

5.2.5.4 Risk Acceptance

MBTA has authorized key staff trained in SRM to document the process used to identify hazards, assess risk, and determine effective risk mitigations. Table 15 identifies the management authority levels that accepts certain residual risk factors. Low residual risks are acceptable within the system without further mitigation by select Safety staff involved in the hazard management review process, including Safety Division Deputy Directors. Medium residual risks are similar to Low-level risks in that they are also acceptable without additional action; however, they must be accepted by the Safety and Operations Division Directors. Serious residual risks are less common within MBTA's risk assessment framework and are accepted by the CSO, the COO, and as applicable by other departments' chiefs. High residual risks are exceptionally rare and may only be accepted by the General Manager.

Risk Acceptance Table – Hazards Identified outside of SRM Workshops

Residual Risk Factor	Action(s) Required to Accept Risk	Minimum MBTA Authority Accepting Risk
Low	Verification within Hazard Tracking System	Safety Division Deputy Directors
Medium	Verification logged within Hazard Tracking System	Safety and Operations Division Directors
Serious	Written justification must be provided; Response logged into Hazard Tracking System	CSO* and COO*, and – as applicable – Chief of other Departments
High	Written justification must be provided; Response logged into Hazard Tracking System	Accountable Executive (GM)

* CSO and COO may formally delegate their authority for risk acceptance temporarily when needed

Table 15 Risk Acceptance Table-Hazard identified outside of SRM Workshops

The risk acceptance process during formal SRM workshops is structured based on the activity's management participants:

Risk Acceptance Table – Hazards Identified via SRM Workshop		
Residual Risk Factor	Action(s) Required to Accept Risk	Minimum MBTA Authority Accepting Risk
Low	DocuSign signature of the SRM Worksheet	SRM Workshop participant from applicable department (Deputy Director or equivalent)
Medium	DocuSign signature of the SRM Worksheet	Senior-most SRM Workshop participant from applicable Operations department (Director or equivalent)
Serious	DocuSign signature of the SRM Worksheet	CSO* and COO*, and – as applicable – Chiefs of other Departments
High	Written justification must be provided; DocuSign signature of the SRM Worksheet	Accountable Executive (GM)

* CSO and COO may formally delegate their authority for risk acceptance temporarily when needed

Table 16 Risk Acceptance Table-Hazard identified via SRM Workshops

MBTA Safety Division personnel will facilitate the SRM process and guide management and leadership throughout the risk acceptance phase. The MBTA authority level that accepts specific safety risks is noted in the Hazard Tracking System.

5.2.6   Risk Mitigation Tracking

The MBTA Safety Division and the stakeholders maintain effective communications to collaborate, identify, and manage new hazards and modified risks. If a new hazard is discovered or a known hazard is suspected to have a higher risk level than previously assessed, it must be analyzed and mitigated or formally accepted by the appropriate authority using the SRM process documented in this section.

Actions associated with risk mitigation tracking include:

- Verification of risk mitigation implementation measures and validation of their effectiveness through appropriate analysis, testing, demonstration, or inspection.
- Documentation of the verification and validation in the Hazard Tracking System.

5.2.6.1   Risk Mitigation & Monitoring Plan

The risk mitigation and monitoring process ensures the effectiveness of safety risk mitigation activities performed by key MBTA departments under formally documented Corrective Action Plans (CAPs) and/or the SRM process. Management level safety committees periodically assess the success of risk mitigations. The Safety Risk Management process is initiated as required when mitigation efforts are insufficient.

MBTA uses both compliance- and performance-based monitoring activities to ensure the effectiveness of risk mitigations. Mitigations related to safety rules and procedures, safety events, employee or customer injuries, and operational performance are primarily monitored via performance-based activities and Safety Performance Indicator monitoring. Mitigations related to programs, training and certification, and regulatory findings are primarily monitored via compliance-based activities such as internal audits.

5.3   HAZARD TRACKING SYSTEM

All identified hazards will be monitored by the MBTA Safety Division through the Hazard Tracking System (HTS),[18] including those hazards identified through the SRM process. The HTS allows MBTA to prioritize hazards based on the level of risk identified in the SRM process. Additional documentation, such as comprehensive CAPs or risk mitigation and monitoring plans, may be developed for those hazards using complex and multifaceted approaches.

Safety's Hazard Tracking System captures essential hazard and assessment information, which includes, but is not limited to:

- Hazard tracking number
- Type of hazard
- Source from which it was identified, or element of the MBTA's operation affected by the hazard
- Requirements for ongoing reporting to the DPU regarding hazard management activities
- Status of the hazard
- Follow up activity (risk mitigation/CAP verification)

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[18] DPU's Program Standard refers to a Hazard Tracking Log, which is incorporated into MBTA's Hazard Tracking System.

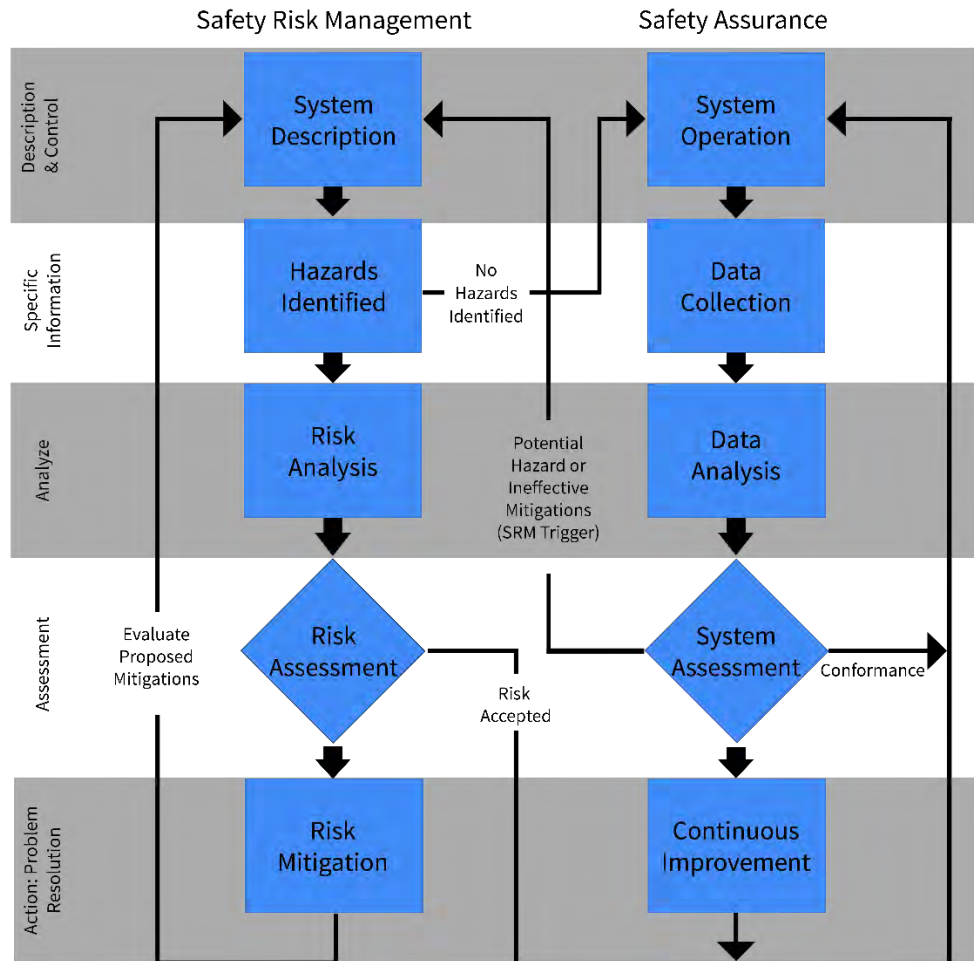## 5.4   SAFETY RISK MANAGEMENT – SAFETY ASSURANCE INTERACTION

Figure 6: Safety Management Decision-making Process

Interactions between MBTA's SRM and Safety Assurance processes are summarized in Figure 6. Risks that have been accepted through the SRM process enter the Safety Assurance process.

The Safety Assurance process allows MBTA to monitor system operation, using data collected over time to assess the status of risks present within the system. If system operation is found to be in conformance with MBTA's expectations surrounding levels of risk and implementation of risk mitigations, then system operations remain unchanged. If the system is found to not be in conformance, MBTA re-initiates the SRM process.

6 SAFETY ASSURANCE

6.1 SAFETY ASSURANCE OVERVIEW

The Safety Assurance process indicates that safety objectives are being met and that risk mitigations, corrective actions, and safety recommendations developed under Safety Risk Management are effective. Safety Assurance requires measuring safety outcomes of operational processes through compliance- or performance-based measures, with the goal of continuously improving the level of safety performance.

The Safety Assurance lifecycle consists of the following steps:

System Operation Monitoring Period

The system operation monitoring period is the interval in which a mitigation or mitigations are performed as a part of the overall system operation before assurance activities begin. For example, if barriers are installed between vehicle operators and the riding public as a mitigation against transit worker assault, the Safety Assurance process may assess the barriers for effectiveness after six months of use.

Data Collection

Through appropriate methods, quantitative or qualitative data will be collected to evaluate mitigations during the system operation/monitoring phase. For example, after six months, the Safety Assurance team may compile and review data on the number of assaults on employees after the installation of barriers.

Data Analysis and Measurement

Once data has been collected, it will be analyzed by a member of the Safety Assurance team with collaboration from the Safety Data and Analytics team as appropriate. This analysis may include, but shall not be limited to:

- Framing qualitative data through narrative reporting
- Comparing the analysis to similar data sets or periods of time
- Comparing the analysis to different types of data from other sources

For example, six months of operator assault data may be compared to six months of operator assault data from one year prior to the installation of barriers, which may demonstrate a reduction in assaults. Descriptions of these assaults can be reviewed qualitatively to determine the role the barriers played in the reduction of assaults.

Safety Performance Assessment

Once the data has been analyzed, the results may be evaluated to determine if the mitigation is performing as intended. If the mitigations are performing as intended, the system operation phase of safety assurance process resumes. For example, if the data analysis demonstrates that barriers have reduced operators assaults by 50%, the Safety Assurance team documents this mitigation has performed as intended.

Continuous Improvement

The MBTA strives for continuous improvement using the Safety Assurance process. Areas identified for improvement or mitigations not working as intended are evaluated and addressed. The review may include, but is limited to, extending the period of system operation/monitoring and data collection to ensure a proper sample size, applying new safety assurance methods, or

resuming the SRM process and re-assessing risks to identify effective mitigations. For example, if a trend in Safety Hotline calls expressing concern over operator assaults is observed, the reports are evaluated using appropriate action.

6.2   SYSTEM OPERATION MONITORING

System operation monitoring includes the monitoring of operational and maintenance processes and the operational environment of the public transportation system. Monitoring operational processes is the observation of the day-to-day, trip-by-trip, job-by-job performance of operational systems and their associated risk mitigations. This is done on a day-to-day basis by MBTA management.

MBTA's Operations Control Center (OCC) department actively monitors the transit system for issues and defects using the Incident Reporting Information System (IRIS) and Enterprise Asset Management (EAM). Information obtained from Operators, Engineering & Maintenance employees, and other employees are logged into a centralized database and communicated to MBTA management and the DPU in real-time. Events involving potential DPU-reportable thresholds are investigated immediately. The real-time collection of and response to employee reports of assaults on transit workers, near-misses, and unsafe acts and conditions is the responsibility of OCC. Non-safety-critical reports related to these areas of risk are accepted by the Safety Division under the voluntary safety reporting programs described in Section 6.3.7.

6.3   DATA COLLECTION

Every business day, MBTA Safety Division data personnel review IRIS to document safety-related events that occurred from the previous day, weekend, and/or holiday's operation. Safety event information is collected for regulatory reporting, investigation, tracking, and trending purposes, and to proactively monitor the operations to identify any safety risk mitigations that may be ineffective or were not implemented as intended.

Information relevant to safety performance is acquired from a variety of sources, including but not limited to:

1. Internal Quality Assurance/Quality Control by MBTA departments
2. Internal Safety Audits
3. External Audits
4. Maintenance Inspections
5. Facility and Equipment Inspections
6. Safety Event Investigations
7. Hazardous Conditions Investigations
8. Mandatory Reporting Programs
9. Voluntary Reporting Programs
10. Drug and Alcohol Program[19]
11. Frontline-based Safety Observations and Inspections

6.3.1   Internal Quality Assurance/Quality Control (QA/QC)

Internal QA/QC performed by MBTA departments is a tool employed to monitor and measure their processes and policies for compliance with the MBTA's procedures.

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[19] MBTA complies with all federal and state regulations regarding drug and alcohol testing. MBTA maintains drug and alcohol policies for all employees and contractors.

Through effective safety management, internal QA/QC assists in the assurance of MBTA safety commitments by utilizing the industry's best practices that:

- Establish rules compliance oversight and verification of effective implementation for both existing and updated rules, procedures, and policies

- Continuously train employees on applicable rules

- Ensure regular review and analysis of performance indicators, and other safety-related data found during rules compliance audits in order to identify, resolve, and track hazards related to rules compliance

- Communicate the purposes of safety-related rules and consequences of noncompliance to employees and contractors working on MBTA property

Elements of safety assurance-related data collection processes for MBTA's Capital Programs function are described within department manuals and program documents, and Capital Programs staff meet regularly with Safety to coordinate sharing of data, program development, and quality assurance activities.

6.3.2 Maintenance Inspections and Maintenance Oversight

MBTA maintenance inspections monitor and evaluate the overall safety of vehicle, facility, and infrastructure maintenance practices, both preventive and corrective. These inspections are used to evaluate:

- Conformance with safety requirements, standards, regulations and best practices

- Knowledge and implementation of safety rules and procedures

- Adherence to required routine maintenance schedules

- Effectiveness of established routine maintenance schedules

6.3.2.1 Vehicle Maintenance

Compliance with the prescribed vehicle maintenance procedures for each subway revenue vehicle is performed regularly. The compliance inspections are performed in accordance with the Equipment Engineering and Quality Assurance (EE&QA) Manual.

6.3.2.2 Facility Maintenance

Audits and inspections of both routine and corrective facility maintenance are conducted by Engineering and Maintenance (E&M) management and/or their contractors. E&M supervisors and forepersons ensure that facility maintenance is completed and documented, and compliant with all applicable rules, regulations, and best practices.

6.3.2.3 Infrastructure Maintenance

Audits and inspections of infrastructure maintenance are conducted by Engineering and Maintenance management and/or their contractors. Supervisors and forepersons ensure that infrastructure maintenance is completed and documented to ensure compliance with all applicable rules, regulations, and best practices.

6.3.3 Assets Subject to Inspection

MBTA infrastructure, facilities, and equipment are subject to safety inspections and include the following:

6.3.3.1   Facility Inspections

Facility safety inspections are conducted in all facilities to identify and document hazards and/or safety issues, as well as to monitor system-wide compliance with established policies and procedures. Compliance with fire protection requirements is verified through various activities, such as emergency drills, fire/life safety inspections, event investigations, and periodic testing of fire protection and fire suppression systems. Additionally, MBTA's insurer employs loss control engineers who routinely and periodically inspect all of MBTA's insured facilities, and issues reports with recommendations to attain and maintain Highly Protected Risks status. Facilities subject to inspection include:

- Stations: Transit stations, parking lots, and surrounding customer circulation routes are periodically inspected for cleanliness, safety, and customer service issues. Maintenance Facilities: Facility supervisors conduct inspections of environmentally sensitive areas and processes such as chemical storage areas, hazardous waste storage areas, chemical process areas, spill containment, and personal protective equipment. These inspections also pertain to maintenance facilities equipment, such as lifts and cranes. These inspections may be conducted by contractors under MBTA oversight.

6.3.3.2   Vehicle Equipment Inspections

Safety inspections are regularly conducted for all vehicle equipment, including revenue and non-revenue vehicles, to identify and document hazards and/or safety issues, as well as to monitor system-wide compliance with established policies and procedures.

6.3.3.3   Infrastructure Inspections

MBTA-owned infrastructure and systems subject to routine inspections include the following:

- Bridges: Routine inspections of bridges are performed at established cycles using approved guidelines. MBTA has developed the Railroad Operations Commuter Rail Design Standards Manual to ensure compliance with the inspection and rating guidelines established in the FRA's "Statement of Agency Policy on the Safety of Railroad Bridges," which also incorporates bridge inspection and rating requirements for transit. The Authority also uses the Federal Highway Administration (FHWA) Pontis Bridge Management System as well as MassDOT's 4D database system that incorporates inspection forms for MBTA-owned highway, transit, and railroad bridges; loadings for highway, transit, and railroad cars; and other relevant information pertaining to highway, transit, and railroad bridges.
- Signals and Communication Systems: Inspections include but are not limited to train stop, car-borne Automatic Train Operation (ATO), two-way radio system, third rail heater system, and switch obstruction tests. DPU-required testing on vital relays is performed in-house on an ongoing basis. New signal installations undergo comprehensive verification testing prior to being placed into service. Signal engineers provide technical oversight for the testing program.
- Power Systems: Inspections include but are not limited to manhole, third rail, feeder cables, and inspections of overhead catenary systems (OCS).

- Track: Track inspections are regularly conducted in accordance with MBTA track standards manuals, which complies with DPU requirements in 220 CMR 151.11, Track Inspections.

6.3.4   Safety Event Investigations

Safety event investigations use a defined process to determine causal and contributing factors of a safety event or hazard, for the purpose mitigating risk to prevent recurrence. Safety event investigations use a standard consistent with federal and state regulation as well as applicable industry best practices. Although safety event investigations take place after an event has occurred, MBTA's goal is to identify and correct hazards and deficiencies before any injuries or property damage occur.

The MBTA Safety Event Investigation Manual (SEIM) describes the investigation process used at MBTA properties, Right of Way (ROW), equipment, environment, rolling stock, personnel, and facilities where a safety event has occurred or may occur. The investigation process includes the following:

- Site inspection and investigation
- Notification requirements
- Causal factor identification
- Lessons learned
- Corrective Action Plan development and implementation
- Communication and distribution of lessons learned

All pertinent information is obtained and assessed prior to documenting causal factors and proposing mitigations. MBTA causal factors are based on the Human Factors Analysis & Classification System (HFACS). Refer to the SEIM for further information on causal factor identification.

Affected personnel with the MBTA Safety Division participate in accident and incident investigation training as described in the SEIM and in Section 8 of this plan. Supplemental training to gain additional knowledge and skills is available through courses offered by the USDOT Transportation Safety Institute as well as collaborative efforts with other transit agencies and industry resources.

6.3.4.1   DPU and FTA Investigation Requirements

MBTA notifies the DPU and FTA within two hours of any safety event occurring on the MBTA rail system. MBTA provides a written notice to the DPU of a hazard or event, to the extent possible under the circumstances, that includes:

1. Name and title of person reporting;
2. Event type;
3. Location, time, and date of event;
4. Fatalities;
5. Injuries;
6. MBTA vehicle(s) involved (type, number);
7. Other vehicle(s) involved (type, number);
8. Property damage estimate;
9. NTSB reportable;

10. FTA reportable;
11. MBTA primary person (i.e., Lead Investigator) conducting the investigation (name, title, phone and fax numbers, email address);
12. Description of the event;
13. Immediately implemented and/or planned corrective actions;
14. Name and telephone number of person from whom additional information may be obtained;
15. Method and time of notice to the DPU.

DPU oversees and monitors MBTA's investigation process. MBTA provides DPU access to documentation, investigation sites, and fact-finding activities as outlined in section 1.3.

DPU may conduct its own investigation according to the requirements of 220 CMR 151.09 and submit the final report and subsequent findings to MBTA. MBTA reviews the DPU final report to assess its safety performance which may result in MBTA using its SRM process described in Chapter 5. If a corrective action plan (CAP) is required, MBTA will follow the CAP process described in this plan and 220 CMR 151.07. DPU allows MBTA an opportunity to file a written dissent.

6.3.5   Hazardous Conditions Investigations

Pursuant to 220 CMR 151.06(4), DPU shall be notified by the MBTA Safety Division when any condition meeting the two highest risk levels is assessed within the Risk Assessment Matrix. MBTA notifies the DPU within two hours after the Safety Risk Assessment is completed and approved by an authorized Safety Division manager, and if relevant, will provide the SRM worksheet/process used to determine that a High or Serious risk(s) exists.

After initial notification, the Department may require MBTA to conduct further activities to provide more detailed information, including conducting an investigation pursuant to 220 CMR 151.09(3) through (9).

6.3.5.1   Investigation Procedures for Hazardous Conditions

In the event DPU requires an investigation into the hazardous condition, MBTA will use the safety event investigation process described in this Transit Safety Plan and documented in the Safety Event Investigation Manual.

6.3.5.2   On-Going Communication with DPU

In addition to the initial notification requirements, the MBTA Safety Division also maintains ongoing communication with DPU regarding other identified hazards and safety risks. This ongoing communication is facilitated in several ways:

- MBTA's hazard tracking system
- OCC pages via mobile communication
- Standing Safety Committees
- Corrective Action Plans (CAPs)
- Monthly meetings

MBTA and DPU work collaboratively to ensure that ongoing communication is taking place throughout the investigation process, and MBTA will continue to update DPU on the status of any outstanding CAPs at monthly meetings and as requested.

6.3.6   Mandatory Safety Reporting Programs

MBTA participates in several mandatory reporting programs.

6.3.6.1   State and Federal Reportable Events

FTA reportable events include the following, as defined in 49 CFR Part 674:

- Fatality
- Two or more injuries
- Derailment
- Collision resulting in one or more injuries
- Collision between two rail transit vehicles
- Collision resulting in disabling damage to a rail transit vehicle
- Evacuation for life safety reasons
- Unintended train movement

DPU reportable events include the following, as defined in 220 CMR 151:

- Fatality at the scene or occurring within 30 days following the accident
- One or more persons suffering Serious Injury
- Property damage resulting from a collision involving a rail transit vehicle or the derailment of a rail transit vehicle
- Evacuation due to life safety reasons
- Derailment
- Collision with a person resulting in Serious Injury or fatality
- Collision between a rail transit vehicle and second rail transit vehicle or a rail transit non-revenue vehicle
- Collision at grade crossing resulting in Serious Injury or fatality
- Fires resulting in Serious Injury or fatality

OSHA reportable events include the following:

- Fatality (report to OSHA within 8 hours)
- Severe Injury (report to OSHA within 24 hours)
  - Amputation
  - Loss of an eye
  - In-patient hospitalization of a worker

6.3.7   Voluntary Safety Reporting Programs

MBTA's voluntary, confidential, non-punitive employee reporting program allows for the submission of information related to observed hazards, sole-source safety events, or inadvertent errors without an associated legal or administrative requirement to report.[20] Reported information should be used solely to support the enhancement of safety.

Voluntary reporting is non-punitive because it offers protection to reporters, thereby ensuring the availability of information to support continuous improvements in safety performance. In addition, voluntary reporting promotes an effective reporting culture and proactive identification

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[20] Within the context of MBTA's voluntary employee safety reporting program, relevant contractors may also use any method necessary to report safety concerns without fear of reprisal.

of potential safety deficiencies. Reports will not be accepted into the voluntary, confidential, non-punitive employee reporting program if one of the following conditions are met:

- Criminal activity;
- Substance abuse;
- Use of prohibited substances;
- Falsification of employee report; or
- *Willful* disregard for safety.

Reports that are rejected for any of the reasons mentioned above are archived and the appropriate state or federal authority are notified.

MBTA's voluntary reporting systems are confidential, which protects the reporter from being identified. The reporter's identity is only known to the system's gatekeepers to ensure the issue is understood and addressed. All personnel exposed to confidential information are required to sign a confidentiality agreement.

Voluntary safety reports are archived and de-identified once any necessary follow-up actions are taken. De-identified reports support future trending analyses to track the effectiveness of risk mitigation and to identify emerging hazards. MBTA reports monthly on the nature and frequency of safety reports and includes safety report information in management dashboards for the purpose of trend identification and analysis.

To be effective, safety reporting tools are readily accessible to all personnel. They are informed of the benefits of MBTA's voluntary, confidential, non-punitive employee reporting program and provide feedback regarding remedial actions taken in response to the report. MBTA uses the following methods for employees to report safety concerns to management without fear of reprisal or disciplinary action:

- Safety Hotline Portal
- Safety Hotline: (617)222-SAFE (7233)
- Safety Hotline email: safetyhotline@mbta.com
- Direct reporting to an MBTA Safety Division official

As this program is a non-punitive, if an employee or contractor believes they have been retaliated against for making a good faith report of a safety concern, then they may report the suspected retaliation to the Employee Concerns Hotline at (617)222-MBTA (6282) or MBTA.ethicspoint.com. The complaint of retaliation is referred to the appropriate department for review and follow-up.

6.4 DATA ANALYSIS

A critical component of SMS is tracking and analyzing safety data to identify trends in MBTA's safety performance and enhance awareness of potentially hazardous situations. MBTA collects and analyzes safety data as described in this Safety Plan and supports the sharing of the data to continually improve safety.

Key parties within MBTA that are responsible for generating, maintaining, and reporting safety-related data include Safety, Plans and Schedules, OCC, Operations Analytics, Operations and Maintenance Training, Procurement, and MCC. Safety coordinates with outside parties on issues related to safety data management primarily through the Data Governance Committee, a multidisciplinary team established to develop organization-wide policies and procedures regarding the MBTA's data. Tasked with reviewing roles and responsibilities of collecting,

analyzing, storing, and sharing of safety data; the Data Governance Committee's objective is to evaluate processes and best practices to establish policies, procedures, and standards for data quality, privacy, security, and compliance.

MBTA's data analysis process prioritizes delivery of clear, actionable information to management safety committees and executive leadership to support informed safety decision-making. The MBTA Safety Division is committed to continuously developing and refining all data analysis reports and products in support of this goal, including the collection of end-user feedback and implementation of new software, tools, and technologies.

The MBTA Safety Division disseminates reports on a regular basis that document safety performance indicators, performance patterns and trends, and emerging issues of interest to MBTA management and the MBTA Board of Directors.

Data analysis is used to identify hazards and verify the effectiveness of implemented risk mitigations. Data analysis also identifies areas where safety may be improved.

6.4.1   Performance Targets

The Joint Labor-Management Safety Committee establishes MBTA's initial performance targets using the 3-year rolling average of the data submitted to the National Transit Database and develops and approves changes to these targets over time. These targets establish the basis of the risk reduction program for transit operations to improve safety by reducing the number and rates of safety events and assaults on transit workers. The JLMSC specifically focuses on:

- Reducing the number of vehicular and pedestrian safety events involving buses, including by measures to reduce visibility impairments for bus operators that contribute to safety events; and
- The mitigation of assaults on transit workers, when a risk analysis performed by the safety committee determines that additional measures would reduce assaults on and injuries to transit workers.

6.4.2   Management of Change

MBTA has management of change (MOC) processes in place for identifying, evaluating, and approving proposed changes that may introduce new hazards or impact MBTA's safety performance. These processes ensure MBTA documents and analyzes the efficacy of changes to the public transportation system and/or safety critical aspects of MBTA's system, including operations, processes, administrative policies and procedures, rules, infrastructure, vehicles, and training.

MBTA's MOC process is embedded in interrelated MBTA programs that address both proposed changes to continuing operations and maintenance activities as well as new or modified systems and equipment. MOC processes include formal SRM workshops, OHS assessments, and the safety certification process. MBTA's inspection, observation, and audit programs also provide safeguards to ensure changes that introduce hazards or may impact safety performance are identified and assessed using the management processes. Safety trainings, including the SMS Fundamentals for All Employees course administered to managers and staff, emphasize the role of hazard identification and reporting in safe management of organizational change. The SMS Implementation Plan describes planned actions that will further mature MOC in upcoming years, including improved document management, communications, and additional training.

MBTA safety assurance activities are designed to ensure that safety risk mitigations are effective, to collect safety performance data to evaluate and mitigate or eliminate future safety events, and to analyze the potential safety risks of any new or revised practices or procedures adopted by MBTA.

6.4.2.1 MBTA Safety and Security Certification Program

MBTA has a process to ensure major capital projects that rehabilitate, replace, extend, or modify infrastructure, systems, vehicles, and equipment are safe and that hazards and safety risks are adequately addressed prior to use. This process is outlined in the most recent version of the Safety & Security Certification Program Plan (SSCPP).

Several activities are conducted to ensure that designs incorporate and achieve safety requirements. The MBTA Safety Division reviews all facilities and system designs to identify hazards, threats, and safety risks. Disposition of comments is resolved through the MBTA design review process. In addition, construction design components are formally certified, and safety items are identified per MBTA standards and requirements. Industry standards and subject matter expert experience are also used to evaluate unique issues related to transit safety. In several cases, special studies or analyses are performed to address specific safety issues. On new capital projects, the MBTA Safety Division works with both the Capital Delivery and Security and Emergency Management departments to develop a Safety and Security Management Plan as required by FTA.

6.5 SAFETY PERFORMANCE ASSESSMENTS

MBTA's Safety Management Review Committee may assess reports from the safety data collection and analysis process to determine the effectiveness of MBTA's safety. The assessment process primarily includes the evaluation of safety objectives and targets yet may also be applied undesirable trends or patterns or to develop an applicable objective, target, or performance indicator.

If the assessment identifies an opportunity for safety performance improvement, MBTA addresses the opportunity using available processes, such as SRM.

6.5.1 Corrective Action Plan

MBTA may develop a written corrective action plan (CAP) to address hazardous conditions and sub-standard safety performance. Circumstances that may require a CAP include, but are not limited to:

- NTSB recommendations
- FTA safety advisories
- DPU independent assessments
- DPU unannounced on-site oversight activities
- DPU inspections
- MBTA Chief Safety Officer directives
- Good Faith Safety Challenges
- External/internal audit findings
- Safety event investigations
- Non-conformance with or insufficient MBTA rules and procedures
- Opportunities identified through the SRM or hazard reporting processes

When the determination is made that an event/hazard requires a CAP, the MBTA Safety Division and the affected departments determine the required mitigation(s) to address the safety issue. The affected departments draft a CAP to ensure appropriate and feasible mitigation(s) reduce the risk to an acceptable level.

CAPs are formally sent to DPU for review and approval within sixty (60) days from the identified event/hazard, as required by 220 CMR 151.07(3). MBTA develops written CAPs on DPU-approved forms to address hazards. The DPU reviews and approves the CAP prior to MBTA implementing the plan.

If MBTA cannot submit a CAP to DPU within sixty (60) days of the discovery of the hazard and/or risk, MBTA submits a written request for an extension, which outlines the reason(s) for the extension, including the tasks to be completed and a timeline for completion.

The MBTA Safety Division uses a web-based program to document all corrective action plans and recommendations.

Each CAP identifies the:

- Event or condition requiring corrective action
- Action necessary to eliminate or control occurrence or condition
- Schedule for implementation
- Person or department responsible for implementation
- The department supervisor who is attesting to the content of the CAP

When CAPs are developed, MBTA considers the elements required to verify effective implementation.

CAP closure requires MBTA to provide:

- Verification that each corrective action described in the CAP has been implemented, or that a proposed alternate action(s) has been implemented subject to DPU review and approval
- Status reports as requested by DPU, describing the status of each open corrective action in relation to the CAP's implementation schedule
- Reports submitted to the DPU after the requirements of an approved CAP have been satisfied

MBTA and DPU meet regularly to review overall progress of CAPs. MBTA notifies DPU of completed corrective actions, including approved alternate actions. DPU reviews the CAP once all actions completed, and grants approval when deemed satisfactory, thus closing the CAP.

Affected employees are made aware of the intended outcome of the corrective action. Communication methods (e.g., Safety Flash) are further discussed in Section 7.2.

6.5.1.1 Immediate Corrective Actions

Immediate corrective actions are deployed by MBTA when a risk poses an imminent danger to employees or the public. MBTA implements immediate corrective actions prior to communicating with the DPU. However, all efforts are made to notify the DPU within two (2) hours after the risk is mitigated to an acceptable level. After such risk is mitigated to an acceptable level, MBTA holds an after-action review meeting to determine adequacy of the corrective actions. If such immediate corrective actions are deemed inadequate, MBTA follows its standard process for developing and implementing CAPs, subject to DPU acceptance.

6.6 CONTINUOUS IMPROVEMENT

MBTA is committed to continually improving SMS and the overall level of safety. Actions taken to achieve continuous improvement are an output of the safety performance assessment process. Safety assurance processes documented in this plan support improvements to the SMS, identification of deficiencies in the SMS, and deficiencies in MBTA's performance against safety performance targets through continual verification and follow-up actions. These objectives, at a minimum, are achieved through the application of internal safety audits, external audits, and peer agencies' reviews of the SMS.

At least annually, during the process of safety performance target development for inclusion in the following years' Transit Safety Plan, the JLMSC and SMRC, under the guidance and direction of the Accountable Executive, identify and formally document corrective actions to address deficiencies in safety performance identified through tracking and reporting on safety performance indicators, including areas where performance fell below the previous year's target.

6.6.1 Internal Safety Audits

The MBTA Internal Safety Audit (ISA) Program ensures safety-related tasks and activities performed by MBTA departments adhere to written plans, programs, and procedures; and are consistent with federal and state regulations, as well as industry best practices. The comprehensive internal safety audit process verifies the Safety Plan is effectively implemented; performing its intended functions; achieving its performance objectives; and ultimately safeguarding MBTA personnel and the public from safety risks. MBTA notifies DPU of its ISA activities via formal letters that identify the department or business unit to be audited, the functional areas of the safety program that will be audited, and the proposed schedule of audit activities.

6.6.1.1 Annual Internal Safety Audit Report

MBTA prepares a report describing the conduct of its internal audits, audit results, and the status of subsequent findings and corrective actions. The report is reviewed by Agency Leadership, signed by the Accountable Executive, and submitted to the DPU under the Accountable Executive's signature annually. The report formally states the safety performance results in terms of the adequacy and effectiveness of this Transit Safety Plan.[22] As a component of the continuous improvement process, deficiencies identified during development of the report are identified as findings and addressed via formal corrective action plans under the direction of the Accountable Executive. The MBTA Internal Safety Audit process is documented in the MBTA Internal Safety Audit Program.

6.6.2 External Audits and Inspections

MBTA complies with all local, state, and federal agencies' oversight activities on MBTA property. The Department of Public Utilities (DPU) may perform observations and periodically send formal correspondence with their findings, and MBTA may take action as a result.

Every three years, the DPU and FTA audit the MBTA. The triennial safety review is a formal, comprehensive, on-site examination by the oversight agency of a transit agency's safety

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[22] Refer to 220 CMR 151.05(3) for regulatory context.

practices to determine MBTA compliance with the policies and procedures required under the Safety Plan.

In addition to the above-mentioned audits, the DPU has the authority and capability to enter MBTA facilities to inspect infrastructure, equipment, records, personnel, and data, including the data that MBTA collects when identifying and evaluating safety risks.

6.6.3   Peer Agency SMS Reviews

MBTA is a member of the American Public Transportation Association (APTA), which supports the exchange of ideas and information from one transit agency to another. Over the course of SMS development and implementation, MBTA has participated in successful peer agency meetings to discuss their SMS. MBTA meets with like-size agencies on a periodic basis to discuss the SMS's successes and challenges. The goal of these meetings is to gather information on effective safety practices that may be incorporated into the SMS.

7 SAFETY PROMOTION

Safety promotion is one of the four components of SMS. Safety promotion refers to the collection of activities undertaken by MBTA to promote a positive safety culture, to communicate the outputs of SMS, and to ensure the application of safety lessons learned to foster continuous safety improvement in MBTA operations.

MBTA is committed to ensuring that all personnel are informed about safety policies and objectives, goal progress, results of safety event investigations, new safety practices, and other pertinent safety information.

7.1 SAFETY CULTURE

To promote a positive safety culture, MBTA leadership affirms that all employees are responsible for and must consider safety in everything they do.

Leadership ensures the growth of a positive safety culture through an informed culture where employees understand the inherent hazards and risks associated with their jobs. This awareness is accomplished through high-quality training, on-the-job training (OJT), and continued coaching to ensure personnel are provided with the necessary knowledge and skills to work safely. SMS-specific training is described in this Safety Plan.

MBTA strives to build a robust reporting culture that encourages every employee to contribute to improving safety. The reporting programs that have been implemented are described in this Safety Plan.

The outputs from SMS, hazards identified, and safety lessons learned are communicated to all employees using the methods described in this section, which ensures a learning culture.

The following programs, as described in this safety plan, are available to support the growth of a positive safety culture:

1. A formal Safety Policy Statement outlining MBTA's commitment to SMS.
2. MBTA management allocates the resources that are required to operate and maintain the SMS.
3. Safety responsibilities for all MBTA personnel are specified.
4. All personnel are required to complete training on the Safety Management System.
5. The employee safety reporting system is available 24 hours per day and supports confidential, non-punitive reporting.
6. Internal safety audits are completed by all departments on a regular basis.
7. MBTA maintains an electronic database of safety information collected from available sources. This data is analyzed, assessed, and applied to improve safety.
8. Channels of communication are established throughout MBTA.

7.2 SAFETY COMMUNICATION

Effective safety communication is an essential element to safety promotion. The Transit Safety Plan has been developed to ensure that employees are aware of SMS policies, processes, and tools that are relevant to their duties and responsibilities. MBTA's Safety Policy, written by the Accountable Executive, is communicated to employees and contractors during all initial and recurrent on-track safety training classes, the SMS Fundamentals for All Employees training course, as well as during New Hire Orientation for all incoming employees. All employees are informed of the location of the Safety Policy on T-STOP within the Transit Safety Plan.

MBTA uses a closed-loop communication method where feedback is circulated to the originator. Within the context of SMS, the employee promptly reports hazards to the manager, who then notifies the appropriate parties and completes the feedback loop with the employee.

MBTA has several methods to communicate hazard information, implemented safety actions, and implemented or modified safety procedures, inlcuding:

- Special Orders (refer to departmental appendices)
- Safety Advisories
- Safety Directives
- Safety Bulletins (distributed as needed)
- Safety Flashes (distributed as needed)
- Toolbox Talks
- Training Flashes
- Safety Blitzes
- Agents of Safety Awards
- Safety Stand-downs
- Rail Safety Week
- Between The Lines Newsletter
- Everbridge Notifications
- T-STOP

MBTA communicates safety learnings and proactive safety messages to ensure employees are continually involved in the SMS.

8 SAFETY TRAINING

MBTA provides SMS training to all employees commensurate with their position in the organization and their duties relevant to the operation and performance of the SMS. Training consists of initial SMS training for all employees and further refresher training for management and front-line employees with specific SMS-related duties. Rail transit safety-related positions, responsibilities, and authorities are defined, documented, and communicated throughout the MBTA. To ensure relevance, SMS training modules are reviewed and updated periodically.

Successful operation of MBTA's SMS is reliant on the SMS training program. This training is designed to ensure that each employee understands his/her individual SMS responsibilities and is competent in performing such duties. Accordingly, safety training will begin with each employee's initial education and continue throughout the term of employment.

MBTA is committed to SMS training to provide all employees with the competencies to work safely and effectively, which is accomplished by:

- Developing SMS training programs in cooperation with employees and operational areas

- Delivering appropriate SMS training programs in an effective and timely manner

- Maintaining records of completed training

Competency is the result of knowledge, skills, and abilities that are obtained by education, training, and experience. To ensure competency at MBTA, minimum qualification standards have been developed for all personnel described in this section. Training will be provided to ensure that each individual meets or exceeds that standard.

The specific SMS training programs utilized are discussed in the sections below.

8.1 PERSONNEL DIRECTLY RESPONSIBLE FOR SAFETY OVERSIGHT

MBTA Safety Division employees within Safety executive leadership, Operational Safety Department, Safety Engineering and Construction Department, Safety Risk Management team, Safety Assurance and Promotion team, and full-time embedded contractors are considered directly responsible for safety oversight at the MBTA. Personnel directly responsible for safety oversight undergo initial and refresher training as it relates to MBTA's SMS performance.

MBTA personnel directly responsible for safety oversight are required to adhere to the following FTA-developed curriculum, as required by 49 CFR Part 672: Public Transportation Safety Certification Training Program (PTSCTP), over a three-year period:

- One-hour course on SMS Awareness – e-learning delivery (all required participants)
- Two-hour course on Safety Assurance – e-learning delivery (all required participants)
- Twenty-hour course on SMS Principles for Transit (all required participants)
- TSSP curriculum (excluding Transit System Security course)
  - Rail System Safety (36 hours)
  - Effectively Managing Transit Emergencies (32 hours)
  - Rail Incident Investigation (36 hours)

All MBTA Safety Division personnel also receive the full suite of SMS-related training described in Section 8.2.

In fulfillment of regulatory requirements related to ongoing PTSCTP recertification training, MBTA's designated recertification training includes both a one-hour course on SMS

fundamentals administered every two years and recertification training specified by the FTA at least every two years.

8.1.1 MBTA Chief Safety Officer

The MBTA CSO has the authority and responsibility for day-to-day implementation and operation of MBTA's SMS. The MBTA CSO has competencies in hazard identification, event investigation, safety certification, coordination with regulatory agencies, communication skills with agency leadership and front-line employees. The MBTA CSO has enrolled in training requirements outlined in 49 CFR Part 672.

The MBTA CSO manages the SMS Function during SMS Implementation and has experience:

- Overseeing the safety function of MBTA.
- Serving as MBTA's SMS subject matter expert.
- Coordinating key staff to support SMS implementation.
- Facilitating the development of SMS processes and activities.
- Procuring technical resources for SMS implementation.
- Communicating SMS implementation progress and challenges.
- Socializing SMS activities to agency leadership and staff as necessary.

8.1.2 Deputy Chief Safety Officer

The Deputy Chief Safety Officer directs the functions and activities of the MBTA's Safety Division related to the development, implementation, audit, inspection, and assessments of initiatives, utilizing the fundamentals of the Safety Management System (SMS).

- Plans and establishes SMS objectives in compliance with MBTA's goals and mission statement.
- Plans, directs, and coordinates, through subordinate level staff, department work plans and provides project management on the implementation and management of MBTA-wide safety projects, including SMS.
- Oversees the SMS program and establishes safety objectives to ensure that the Authority and customers are given the highest degree of safe and secure transportation service.
- Directs and oversees MBTA Transit Safety Plan.

8.1.3 Safety Engineering

Safety engineering personnel have knowledge of the concepts, principles, theories, and methods to identify, control, mitigate, and eliminate safety hazards in the design and use of facilities, equipment, vehicles, systems, operations, and work processes.

8.1.4 Safety Event Investigators

MBTA safety event investigators have training and/or experience in investigations, systems analysis, root cause analysis, and risk management, as well as evaluation principles and techniques. Any one or combination of the following could accomplish training:

- MBTA prepared courses
- College courses
- Industry seminars and workshops
- Selected Transportation Safety Institute (TSI) courses

As described in Section 8.1, MBTA's safety event investigators are designated as responsible for safety oversight and complete investigation training as part of their individual training plans and the TSSP curriculum in accordance with PTSCTP guidelines.

Refer to the MBTA Safety Event Investigation Manual for further information.

8.1.5 Internal Safety Auditors

220 CMR 151.05(2)(c) requires MBTA, "use qualified personnel who are not supervising managers of the activity under review" to perform the Internal Safety Audit.

MBTA ISA auditors have training and/or experience in auditing, systems analysis, root cause analysis, and risk management, as well as evaluation principles and techniques. Any one or combination of the following could accomplish training:

- MBTA prepared courses
- College courses
- Industry seminars and workshops
- Selected Transportation Safety Institute (TSI) courses

MBTA created a required internal safety audit training module in Career LINE for any personnel conducting internal safety audits. Refer to the MBTA Internal Safety Audit (ISA) Program for further information.

8.1.6 Personnel Directly Responsible for Safety

MBTA has established a comprehensive safety competence program for all personnel directly responsible for safety, including Agency Leadership as defined in Section 4.1.4, operations and maintenance personnel at the executive level, frontline operations and maintenance management, and frontline employees in operations and maintenance roles.

Each departmental job code has an associated job training profile that lists all required safety-related training courses, including education in the following areas:

- SMS
- Safety event investigation
- Incident command
- Occupational health and safety
- Operations and maintenance
- Right-of-way safety
- De-escalation

The job training profiles also specify continuing education requirements and refresher frequencies for each job code and assigned course title.

8.2 MBTA SMS-RELATED TRAINING COURSES

The level of training provided ranges from general safety familiarization to detailed risk management training. Training is delivered in accordance with the employee's duties relevant to the operation and performance of the SMS.

Figure 7: Safety Training Courses Supporting MBTA's SMS

MBTA utilizes the SMS training modules listed below:

- MBTA Safety Management System (SMS) Fundamentals Training (all employees and relevant contractors)
- Safety Risk Management Training (all safety personnel, executive and frontline management)
- Specialized SMS Training (agency leadership, executive management, and safety personnel)

Details of the SMS-specific training content are provided below. This training is reviewed and updated periodically.

8.2.1 MBTA SMS Fundamentals Training

As part of new employment training, all employees are educated on the fundamentals of SMS and employee safety reporting systems. The initial MBTA SMS fundamentals training module addresses the objectives shown below:

- Define SMS;
- Explain the employee's role in SMS;
- Identify hazards;
- Report hazards and safety concerns; and
- Describe the differences in voluntary and mandatory reporting systems

New employees complete MBTA's SMS fundamentals training module during New Hire Orientation. Current employees are required to complete the SMS fundamentals training hosted on Career LINE.

Relevant contractors receive SMS Fundamentals training during on-track safety training, which is provided to employees and relevant contractors every two years.

8.2.2 Safety Risk Management Training

Three SRM training modules were created for executive and frontline management, Safety personnel, and subject matter experts who participate in the SRM process.

8.2.2.1 Safety Risk Management at the MBTA Training

The Safety Risk Management at the MBTA training module is an introductory course to the SRM process. The training module addresses the following objectives:

- Define SRM, including how it fits into MBTA's overall SMS;
- Describe why it is important to conduct SRM and the value it brings to MBTA;
- Recognize who is involved in SRM and what roles they play;
- Identify when and how to initiate the SRM process; and
- Understand the five steps of MBTA's SRM process.

8.2.2.2 Preparing for an SRM Workshop

The Preparing for an SRM Workshop module is designed for those personnel who may participate in the SRM process by attending an SRM workshop and using an SRM worksheet. The training module addresses the following objectives:

- Identify when and how to initiate the SRM process;
- Understand the five steps of MBTA's SRM process; and
- Apply this knowledge by participating in upcoming SRM workshops and using an SRM worksheet.

8.2.2.3 SRM Facilitation Training

The SRM Facilitation training module is an in-depth course designed for Safety personnel who are required to facilitate the SRM process using the SRM worksheet, or equivalent. The training module addresses the following objectives:

- Recognize when and how to initiate the SRM process;
- Describe how to effectively prepare for and conduct an SRM workshop;
- Use each part of the SRM worksheet to guide participants through the SRM process; and
- Explain how to finalize the SRM worksheet and complete the process.

8.2.3 Specialized SMS Training

In addition to specialized SRM training, executive management and key staff receive specialized SMS training applicable to their safety risk accountabilities. The executive and key staff of the agency who oversee the SMS implementation and maturation, including Safety personnel, receive the following training modules.

8.2.3.1   SMS Leadership Responsibilities Training

The purpose of the SMS Leadership Responsibilities training module is to ensure MBTA executive management, safety personnel, and key staff understand their leadership responsibilities for safety within MBTA's SMS. The training module addresses the following objectives:

- Define the purpose and scope of the MBTA Transit Safety Plan and how it aligns with regulatory requirements;
- Explain how the MBTA's organizational structure supports its SMS; and
- Describe MBTA management responsibilities for safety under this Safety Plan.

8.2.3.2   Safety Culture Training

The purpose of the Safety Culture training module is to ensure MBTA executive management, safety personnel, and key staff understand their roles in contributing to a positive safety culture at MBTA. The training module addresses the following objectives:

- Discuss safety culture and how it impacts an organization; and
- Identify elements, characteristics, and behaviors associated with a positive safety culture.

8.2.3.3   Safety Performance and Oversight Training

The purpose of the Safety Performance and Oversight training module is to provide MBTA executive management, Safety Committee members, and Safety Division staff with an overview of their roles and responsibilities regarding safety performance and oversight of SMS through safety assurance activities. The training module addresses the following objectives:

- Define safety performance;
- Identify leadership responsibilities for oversight of SMS;
- Set safety targets based on agency goals/objectives; and
- Evaluate safety performance through measurements and trends.

8.2.3.4   Safety Assurance Training

The purpose of the Safety Assurance training module is to provide MBTA executive management, Safety Committee members, and Safety Division staff an overview of their roles and responsibilities regarding safety assurance activities. The training module addresses the following objectives:

- Define safety assurance process; and
- Explain the importance of continuous improvement.

8.2.3.5   Local Safety Committee Training

MBTA offers two training modules regarding local safety committees, as described below. All executive management, frontline managers, and Safety personnel take the Introduction to Participating in a Local Safety Committee course. In addition, Safety Division staff take the Local Safety Committees: Safety Division Responsibilities module.

8.2.3.5.1 Introduction to Participating in a Local Safety Committee

The purpose of the Introduction to Participating in a Local Safety Committee course is to introduce MBTA management and personnel to local safety committees within the MBTA safety committee structure. The training module addresses the following objectives:

- Explain why local safety committees are essential to MBTA's SMS;
- Identify the benefits – both personal and for the MBTA – of being an active member in a local safety committee;
- Define roles and responsibilities for personnel involved in local safety committees; and
- Describe what happens before, during, and after local safety committee meetings.

MBTA management periodically reassign Local Safety Committee trainings to Safety personnel and staff from other business units to ensure a consistent baseline of knowledge related to committee roles and responsibilities, participation, and facilitation. The Introduction to Participating in a Local Safety Committee training course is promoted to front line personnel via committee meetings, facility safety message boards, and TCOMMS, and is available to any employee on a continuous basis via Career LINE.

8.2.3.5.2 Local Safety Committees: Safety Division Responsibilities

The purpose of the Local Safety Committees: Safety Division Responsibilities training module is to help Safety personnel better understand local safety committees and Safety's related roles and responsibilities. The training module addresses the following objectives:

- Describe the importance of Safety personnel to actively engage in local safety committees, and the benefits of doing so;
- Describe the relationship between local safety committee inputs/outputs and MBTA's SMS;
- Define Safety's roles and responsibilities related to local safety committees; and
- Explain how Safety staff support local safety committee meetings through preparation, facilitation, and follow-up actions.

APPENDICES

ACRONYMS

APTA	American Public Transportation Association
CAP	Corrective Action Plan
CDC	Centers for Disease Control
CEMP	Comprehensive Emergency Management Plan
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
CSO	MBTA Chief Safety Officer
DGM	Deputy General Manager
DLS	Massachusetts Department of Labor Standards
DPH	Massachusetts Department of Public Health
DPU	Massachusetts Department of Public Utilities
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GM	General Manager (General Manager and Accountable Executive are interchangeable terms)
HTS	Hazard Tracking System
JLMSC	Joint Labor-Management Safety Committee
MassDOT	Massachusetts Department of Transportation
MBTA	Massachusetts Bay Transportation Authority
MCRS	Maintenance Control and Reporting System
MIL-STD	Military Standard
MOC	Management of Change
NTD	National Transit Database
NTSB	National Transportation Safety Board
OCC	Operations Control Center
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Administration
OTIP	Operational Testing and Inspection Program
PTASP	Public Transportation Agency Safety Plan (also referred to as the MBTA Transit Safety Plan or Safety Plan)
QA/QC	Quality Assurance/Quality Control

QCO	Quality, Compliance, and Oversight
ROW	Right of Way
SGR	State of Good Repair
SEIM	Safety Event Investigation Manual
SMI	Safety Management Inspection
SMRC	Safety Management Review Committee
SMS	Safety Management System
SC	Safety Culture
SMSIP	Safety Management System Implementation Plan
SOP	Standard Operating Procedure
SOG	Standard Operating Guidelines
SRCP	Safety Rules Compliance Program
TAM	Transit Asset Management
TPD	Transit Police Department
USC	United States Code
UZA	Urbanized Area

DEFINITIONS

Accountable Executive: A single, identifiable person who has ultimate responsibility and accountability for the effective implementation and maintenance of the Safety Management System throughout the Authority's transit system; responsibility for carrying out the transit agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the transit agency's Public Transportation Agency Safety Plan, in accordance with 49 CFR 673, and the transit agency's Transit Asset Management Plan in accordance with 49 CFR 625. MBTA's Accountable Executive is the General Manager.

In accordance with 49 CFR 674, an *Accountable Executive* means a single, identifiable person who has ultimate responsibility for carrying out the Public Transportation Agency Safety Plan of a transit agency; responsibility for carrying out the transit agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the transit agency's Public Transportation Agency Safety Plan, in accordance with 49 U.S.C. 5329(d), and the transit agency's Transit Asset Management Plan in accordance with 49 U.S.C. 5326.

Administrator: The Federal Transit Administrator or the Administrator's designee.

Annual Internal Safety Audit Report: The report prepared by the MBTA describing safety performance and SMS activities performed during the preceding twelve (12) months.

Assault on a Transit Worker: 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.

Causal Factors: The set of elements that affect an event's outcome. A causal factor is not necessarily a root cause, because whereas removing a causal factor can benefit an outcome, it does not with certainty prevent recurrence of a safety event.

CDC: The Centers for Disease Control and Prevention of the United States Department of Health and Human Services.

Chief Safety Officer (CSO): An adequately trained individual who has responsibility for safety and reports directly to MBTA's Accountable Executive (General Manager). A Chief Safety Officer may not serve in other operational or maintenance capacities.

Closed-loop: The concept of a loop system where feedback is circulated back to the originator. Within the context of SMS, the employee promptly reports hazards to the manager, who will then notify appropriate parties and complete the loop by following up with the employee.

Collision: Any impact between a rail transit vehicle and any other vehicle, object, or any person.

Configuration Management: The systematic control, monitoring, and documenting of all changes and/or modifications of a system's physical and operational features throughout its life cycle to ensure that the system and its various components reflect the current documentation. This plan incorporates by reference MBTA's Configuration Management and Control Safety Program (SAFE1.10.00).

Continuous Improvement: Gradual, never-ending changes focused on meeting or exceeding MBTA's safety performance targets and safety objectives. Continuous improvement is a core

sub-component found within Safety Assurance. Continuous improvement may come in the form of a safety recommendation, a corrective action plan, or other methods to improve safety at the MBTA.

Contractor: An entity that performs tasks on behalf of FTA, a SSOA, or RTA through contract or other agreement.

Corrective Action Plan: A plan developed by a Rail Transit Agency that describes the actions the Rail Transit Agency will take to address an identified deficiency or safety concern, and the schedule for taking those actions. Either a State Safety Oversight Agency or FTA may require a Rail Transit Agency to develop and carry out a corrective action plan.

Derailment: A safety event in which one or more wheels of a rail transit vehicle unintentionally leaves the rails.

Designated personnel: Employees and contractors identified by a receipt whose job functions are directly responsible for safety oversight of the public transportation system or public transportation agency.

Disabling damage: means damage to a rail transit vehicle resulting from a collision and preventing the vehicle from operating under its own power.

Emergency: As defined under 49 U.S.C. 5324, a natural disaster affecting a wide area (such as a flood, hurricane, tidal wave, earthquake, severe storm, or landslide) or a catastrophic failure from any external cause, as a result of which the Governor of a State has declared an emergency and the Secretary has concurred; or the President has declared a major disaster under section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170).

Employee Safety Reporting Program: A Program formally recognized and approved by the MBTA that describes the process for employees to report safety conditions to senior management, protections for employees who report safety conditions to senior management, and a description of employee behaviors that may result in disciplinary action.

Environment: Operational setting, right-of-way, passenger interface, pedestrian/vehicle interface, weather, subway/non-subway, regulatory, political, media, etc.

Evacuation for life safety reasons: A condition that occurs when persons depart from transit vehicles or facilities for life safety reasons, including self-evacuation. A life safety reason may include a situation such as a fire, the presence of smoke or noxious fumes, a fuel leak from any source, an electrical hazard, or other hazard to any person. An evacuation of passengers into the rail right of way (not at a platform or station) for any reason is presumed to be an evacuation for life safety reasons.

Fatality: A death confirmed within 30 days of a safety event. Fatalities include suicides, but do not include deaths in or on transit property that are a result of drug overdose, exposure to the elements, illness, or natural causes.

Good Faith Safety Challenge: A stoppage in work, initiated by an employee, whenever the employee makes a good faith safety determination that the employee has been directed to either: take actions that would violate federal, state, or local safety regulations; or to take actions that would violate MBTA's operating rules, policies, procedures, or programs.

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

Injury: Any harm to persons as a result of an event that requires immediate medical attention away from the scene. Does not include harm resulting from a drug overdose, exposure to the elements, illness, natural causes, or occupational safety events occurring in administrative buildings.

Inspection: A physical observation of equipment, facilities, rolling stock, operations, personnel, or records for the purpose of gathering or analyzing facts or information.

Investigation: The process of determining the causal and contributing factors of a safety event or hazard, for the purpose of preventing recurrence and mitigating safety risk.

Joint Labor Management Process: A formal approach to discuss topics affecting transit workers and the public transportation system.

Lagging Indicators: Measures of unsafe events that have occurred such as derailments, safety events, casualties, fires, or evacuations; also known as trailing indicators.

Leading Indicators: Measures of event precursors that may be predictive of unsafe events, such as close calls, deterioration of asset conditions, or failures to comply with safety standards.

MassDOT/MBTA Comprehensive Emergency Management Plan: A guiding document that provides the basis on which the MBTA prepares for, responds to, and recovers from disasters and other emergencies.

MassDOT/MBTA Railroad System Safety Program Plan: An FRA-regulated plan that documents system safety programs and processes used by MassDOT/MBTA Regional Rail employees, which satisfies the requirements of 49 CFR Part 270: System Safety Program.

MBTA Management: The collective management groups across all MBTA departments, which consist of frontline managers and executive managers.

MBTA Personnel: For purposes of this Transit Safety Plan, MBTA personnel include employees and contractors.

MBTA Safety Division: The MBTA's Safety Division and all personnel associated with the Division. MBTA Safety Division staff are responsible for corporate oversight of the safety processes and objectives described within the Safety Plan, and for providing corporate safety guidance to MBTA management, labor, and contractors in working to achieve safety performance objectives.

Near Miss: A narrowly avoided safety event in which no property was damaged, and no injury was sustained, but where given a slight shift in time, position, or situational awareness, damage or injury could have easily occurred. A violation of a rule or procedure shall not be classified as a near miss unless the violation introduced a direct, urgent, and immediate risk to health, life, property, or the environment at the time of its occurrence.

Occupational Health and Safety (OHS) Plan: A comprehensive plan that governs and defines the authority, responsibilities, roles, and processes related to MBTA's workplace safety programs. For detailed information related to MBTA's workplace safety programs, including hazardous materials, refer to the OHS Plan.

Operator of a Public Transportation System: A provider of public transportation.

Passenger: A person who is onboard, boarding, or alighting from a transit vehicle for the purpose of travel.

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

Person: A passenger, employee, contractor, volunteer, official worker, pedestrian, trespasser, or any other individual on the property of a rail fixed guideway public transportation system or associated infrastructure.

Personnel Directly Responsible for Safety: MBTA personnel involved in any of the following duties:

- Operating a revenue service vehicle, including when not in revenue service.
- Operating a nonrevenue service vehicle, when required to be operated by a holder of a Commercial Driver's License.
- Controlling dispatch or movement of a revenue service vehicle.
- Maintaining (including repairs, overhaul and rebuilding) a revenue service vehicle or equipment used in revenue service.
- Carrying a firearm for security purposes.
- A person employed or contracted by the MBTA who is in a formally-designated safety-sensitive position.

Personnel Directly Responsible for Safety Oversight: MBTA personnel whose primary job function includes the development, implementation and review of the agency's safety plan, and/or the SSOA requirements for the rail fixed guideway public transportation system pursuant to 49 CFR parts 659 or 674. MBTA's Chief Safety Officer and Safety personnel have primary job functions directly responsible for safety oversight.

Potential Consequence: The effect of a hazard.

Procedures: Rules, SOPs, orders, training, emergency procedures, notifications, investigations, reporting, data collection, etc.

Public Transportation: As defined under 49 U.S.C. 5302, regular, continuing shared-ride surface transportation services that are open to the general public or open to a segment of the general public defined by age, disability, or low income; and does not include:

(1) Intercity passenger rail transportation provided by the entity described in 49 U.S.C. chapter 243 (or a successor to such entity);

(2) Intercity bus service;

(3) Charter bus service;

(4) School bus service;

(5) Sightseeing service;

(6) Courtesy shuttle service for patrons of one or more specific establishments; or

(7) Intra-terminal or intra-facility shuttle services.

Public Transportation Agency Safety Plan (PTASP): The documented, comprehensive agency safety plan for a transit agency that is required by 49 U.S.C. 5329 and 49 CFR Part 673. This MBTA Transit Safety Plan is intended to meet the PTASP requirements.

Public Transportation Agency: As referenced in this plan, the MBTA is the public transportation agency.

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

Rail Transit Vehicle: The MBTA's rolling stock specific to rail including, but not limited to, passenger and maintenance vehicles.

Recommendation: A safety action that usually addresses a specific issue uncovered during an internal safety audit, employee safety report, or safety data analysis. Recommendations may be developed in instances where MBTA is technically in compliance with applicable federal and state regulations and documented safety program requirements, but where no written plan, policy, or procedure is in place, where agency practices are not fully consistent with relevant industry best practices and standards, or where organizational and resource issues have inhibited the performance of safety-related activities. A recommendation does not take the place of a Corrective Action Plan (CAP).

Regulator: An individual or organization that is granted oversight of a system in order to ensure its day-to-day efficiency and continual improvement.

Relevant Contractor: A person contracted by the MBTA who is involved in any of the following duties:

- Operating a revenue service vehicle, including when not in revenue service.
- Operating a nonrevenue service vehicle, when required to be operated by a holder of a Commercial Driver's License.
- Controlling dispatch or movement of a revenue service vehicle.
- Maintaining (including repairs, overhaul and rebuilding) a revenue service vehicle or equipment used in revenue service.
- Carrying a firearm for security purposes.
- A person contracted by the MBTA who is in a formally-designated safety-sensitive position.

Reportable Event: Any safety event that occurs within the MBTA transportation system that requires a formalized investigation process, reporting as required by federal or state regulations, and/or MBTA rules, policies, orders, directives, or regulation.

Revenue vehicle: A rail transit vehicle used to provide revenue service for passengers. This includes providing fare free service.

Right of Way: The property over which trains and authorized rail equipment operate, and ten feet from the centerline of track in any direction, including sidings and yards.

Risk-based inspection program: means an inspection program that uses qualitative and quantitative data analysis to inform ongoing inspection activities. Risk-based inspection

programs are designed to prioritize inspections to address safety concerns and hazards associated with the highest levels of safety risk.

Risk Likelihood: The likelihood that a consequence's chosen severity level will occur when the identified hazard is present/encountered. Risk likelihood may be expressed in quantitative or qualitative terms. The five MBTA risk likelihood levels are (refer to Table 13 of this Transit Safety Plan for descriptions):

- Frequent
- Probable
- Occasional
- Remote
- Improbable

Risk Severity: A qualitative measure in which a consequence/effect of a hazard's condition results in a certain level of severity. The five MBTA risk severity levels are (refer to Table 12 of this Transit Safety Plan for descriptions):

- Catastrophic
- Critical
- Moderate
- Minor
- Low

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

Rolling Stock: Transit vehicles such as buses, vans, cars, railcars, locomotives, trolley cars and trolley buses, as well as vehicles used for support and maintenance services.

Root Cause Analysis (RCA): A specialized, technical, in-depth investigation and analysis that identifies the primary cause(s) of events in order to make corrective recommendations to prevent reoccurrence. RCA is a reactive method of hazard analysis and is an effective tool for understanding why and how an event occurred.

Safety: The state in which the potential of harm to persons or property damage during operations related to provisions of services is reduced to and maintained at an acceptable level through continuing hazard identification and safety risk management activities.

Safety Advisory: A formal notification issued by MBTA's Chief Safety Officer to MBTA or contractor management advising of a real or potential hazard or unsafe system condition. Safety Advisories request review and assessment of the hazard/condition and recommend that recipients respond to any findings with a Corrective Action Plan (CAP). If the hazard/condition identified is severe enough, an Urgent Safety Advisory may be issued in place of a standard Safety Advisory. A Safety Directive may also be issued as a follow-up or higher-level notification.

Safety Assurance: Processes within the MBTA's SMS that function to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

Safety and Security Certification: A process used to verify safety-related requirements are incorporated into a project, thereby demonstrating that it is operationally ready for revenue

service and safe and secure for passengers, employees, public safety agencies, and the general public. This plan incorporates by reference MBTA's Safety and Security Certification Program.

Safety Critical: A term applied to any system, part, condition, event, operation, process, or item whose failure or malfunction may result in:

- death or injury to people;
- loss or severe damage to property, equipment;
- significant environmental impact; or
- major service interruption or system loss.

Safety Culture: The safety culture of an organization is the product of the individual and group values, attitudes, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety programs. Organizations with a positive safety culture are characterized by communications founded on mutual trust, shared perceptions of the importance of safety, and confidence in the efficacy of preventative measures.

Safety Committee: the formal joint labor-management committee on issues related to safety that is required by 49 U.S.C 5329 and 49 CFR Part 673.

Safety Directive: A formal notification issued by the MBTA's Chief Safety Officer to MBTA or contractor management identifying an urgent and high level hazard or unsafe system condition. Safety Directives require a response from the recipient with a Corrective Action Plan (CAP) and may be issued in conjunction with or independently of a Safety Advisory.

Safety Event: 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 Hotline: A telephone communication method for employees to report safety conditions and/or hazards directly to the MBTA Safety Division. The telephone number is (617)222-SAFE (7233) and is checked every business day. Safety Hotline is also used as a colloquial term for the Employee Safety Reporting Program, including all reporting methods.

Safety Hotline Portal: A voluntary, confidential, and non-punitive method based on the T-STOP platform for employees to report concerns without fear, enhancing workplace safety and trust.

Safety Management Policy: A transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities for the management of safety.

Safety Management System (SMS): A formal, organization-wide, data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations. SMS includes systematic procedures, practices, and policies for managing hazards and safety risks.

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

Safety Notification: As it relates to the Employee Safety Reporting System, a Safety Notification is a form of communication an employee may use to document a hazard or safety concern and submit it via e-mail, T-STOP, or hand-delivery.

Safety Performance Target: 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 time period.

Safety Plan: A comprehensive federally-required document that outlines the activities and processes of the MBTA's safety program. It establishes the framework for the MBTA's Safety Management System (SMS) program and applies to Heavy Rail, Light Rail, Bus, and Paratransit operations.

Safety Promotion: One of the four (4) main components of SMS; a combination of training and communication of safety information to support SMS as applied to the transit agency's public transportation system.

Safety Risk: The composite of predicted severity and likelihood of a potential consequence of a hazard.

Safety Risk Assessment: The formal activity whereby a transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.

Safety Risk Management (SRM): One of the four (4) main components of SMS; a process within a transit agency's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating thte safety risk of their potential consequences.

Safety Risk Mitigation: a method or methods to eliminate or reduce the severity and/or likelihood of a potential consequence of a hazard.

Safety Stand-Down: A temporary stop in normal work where the entire work crew or site focuses on a particular safety issue. MBTA management can conduct a safety stand-down by taking a break to host a toolbox talk or a meeting to discuss a safety topic, like conducting safety equipment inspections, developing rescue plans, or talking about job-specific hazards.

Safety Validation: The process of determining whether a system's safety design requirements fulfill its intended safety design objectives before, during, and after its development and life cycle. The goal of the safety validation process is to determine the system and or product is built, tested, and designed correctly and in accordance with its intended safety design, purpose, performance expectations, and regulatory requirements and industry best practices.

Security: Freedom from harm resulting from intentional acts or circumstances.

Sole Source: All evidence of the safety event available to the MBTA is discovered by or otherwise predicated on the employee/contractor safety report through the Employee Safety Reporting Program (ESRP).

State of Good Repair: The condition in which a capital asset is able to safely operate at a full level of performance.

State Safety Oversight Agency: The entity established by the State and certified by the FTA to regulate and oversee state transit agencies, including fixed guideway systems (trolley, light & heavy rail), bus, and paratransit, and other transportation systems not otherwise regulated by the FRA (passenger rail operation) in accordance with 220 CMR 151, 220 CMR 155, 49 USC 5329, and 49 CFR Parts 673 and 674. The Department of Public Utilities (Department or DPU) is appointed as the SSOA for the state of Massachusetts.

Substance Abuse: The use of drugs not prescribed to the individual, the use of illicit substances, or overmedicating oneself using prescription medications.

System: A composite of people, procedures and equipment that are integrated to perform a specific operational task or function within a specific environment.

System Lifecycle: All phases of the system's life, including design, research, development, test and evaluation, production, deployment (inventory), operations and support, and disposal. Considering all phases of a system lifecycle is a standard practice of system safety.

System Modification: Any change to a system, facility, equipment, program, or department that may introduce a new hazard to the public transportation system. This safety plan incorporates by reference the MBTA System Modification Safety Program (SAFE1.08.00).

System Safety: The application of operating, technical, and management techniques and principles to the safety aspects of a system throughout its life cycle to reduce hazards to the lowest practical level through the most effective use of available resources.

System Safety Engineering: An engineering discipline that employs specialized professional knowledge and skills in applying scientific and engineering principals, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

The RIDE: MBTA's door-to-door, shared-ride paratransit service. The RIDE is operated by the MBTA in compliance with the Americans with Disabilities Act (ADA). Demand-response service and paratransit service are synonymous with The RIDE in this Safety Plan.

Transit Asset Management (TAM) Plan: The strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation, as required by 49 U.S.C. 5326 and 49 CFR Part 625. **Transit Worker**: Any employee, contractor, or volunteer working on behalf of the transit agency.

Triennial Safety Review: A formal, comprehensive, on-site examination by the oversight agency of a transit agency's safety practices to determine whether they comply with the policies and procedures required under the transit agency's system safety program plan.

Unintended train movement: Any instance where a revenue vehicle is moving and is not under the control of a driver (whether or not the operator is physically on the vehicle at the time). This applies regardless of whether the event occurred in revenue service.

Urgent Safety Advisory: A formal notification issued by the MBTA Chief Safety Officer to MBTA or contractor management advising them of an urgent hazard or unsafe system condition. Urgent Safety Advisories require immediate action and response by the recipient, with expedited development of a Corrective Action Plan (CAP).

Willful Disregard for Safety: An intentional, voluntary act committed either with knowledge of the relevant MBTA rule or reckless disregard for whether the act violated the requirements of the MBTA rule. A willful disregard for safety must demonstrate a higher level of culpability than negligence.

SAFETY ASSESSMENT DECISION TOOL

Background & Use:

The Safety Assessment Decision Tool (see next page) is intended to serve as a visual reference and job aid to help you make informed decisions about the different types of safety assessments that are used to support Safety Risk Management (SRM) at the MBTA. You'll see there are numerous safety assessments that can be used, and this tool is intended to guide you as to which one may be best suited to a given situation.

The Safety Assessment Decision Tool does not cover every possible type of safety assessment or SRM activity that can be used. Instead, it presents some of the most common scenarios you may run into and suggests the most appropriate tool to use in those cases.

How to Use this Tool:

Start with the first column, labeled *First Ask: Is the issued related to…* Read down the column until you find the question you can best answer "yes" to regarding the issue you've encountered. You may recognize the options in this column as the "ten triggers" for SRM that are listed in the MBTA Transit Safety Plan and that were discussed in the *Safety Risk Management at the MBTA* training.
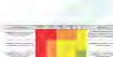
Once you've chosen the most appropriate trigger, check if there are additional questions to ask in the second *If Yes, Then Ask: Is this issue related to…* column. If so, select the one you can best answer "yes" to. You can review the corresponding *Example Scenario* in the third column to illustrate the question and help you select the best fit.

From there, follow the selected row to the right. The column provides guidance on the activity that might be most appropriate to use for the situation, while the *Output & Monitoring* column lists the document(s) that will be produced as an output of the activity, and the established mechanism for ongoing tracking and monitoring.

For More Information:

- For a refresher on SRM concepts, review the MBTA Transit Safety Plan, Chapter 5, or the *Safety Risk Management at the MBTA* training course in Career LINE.
- For information on how to perform specific assessments/activities listed on the tool, refer to relevant supporting programs and procedures (e.g., SRM SOP, Safety and Security Certification Program, etc.).
- If you have additional questions, please contact the Deputy Director of Safety Risk Management or SRM@mbta.com.

Safety Assessment Decision Tool

First Ask: Is the issue related to...	If Yes, Then Ask: Is the issue related to...	Example Scenario	Tool to Use	Outputs & Monitoring
A new system, equipment, or capital project?		Building a new rail line extension	Safety Certification	Safety Cert. Package & SDMS Hazards Module
A change to existing system, equipment, or infrastructure?	A capital project?	Making accessibility improvements to a station	Safety Certification	Safety Cert. Package & SDMS Hazards Module
	A change made by an MBTA Department?	Changing the location of a signal mast	SRM Worksheet	SRM Worksheet
A new operation of service?		Planning a new bus route	SRM Worksheet	SRM Worksheet
A new operations or maintenance procedure?	Occupational safety associated with a specific job task?	Drafting a new procedure for working in confined space	OHS Assessment	Assessment Report & SDMS Hazards Module
	Something else?	Introducing a new operating rule	SRM Worksheet	SRM Worksheet
A change to an existing operations or maintenance procedure?	Occupational safety associated with a specific job task?	Modifying a procedure for welding rail	OHS Assessment	Assessment Report & SDMS Hazards Module
	Something else?	Updating an SOP for making safety event response notifications	SRM Worksheet	SRM Worksheet
An organizational change?		Restructuring of operating departments and chain of command	SRM Worksheet	SRM Worksheet
The procurement process?	A capital project?	Procuring new vehicles	Safety Certification	Safety Cert. Package & SDMS Hazards Module
	A purchase that could introduce safety risk?	Purchasing a new software system related to maintenance practices	SRM Worksheet	SRM Worksheet
	A purchase that doesn't introduce safety risk?	Buying a new brand of office printers	Procurement Process	Purchase Order & FMIS
The identification of a possible hazard or ineffective risk mitigation?	A capital project?	Discovering a hazard on a new revenue vehicle undergoing testing	Safety Certification	Safety Cert. Package & SDMS Hazards Module
	Occupational safety associated with a specific job task?	Determining that mitigations for employees performing hot work are inadequate	OHS Assessment	Assessment Report & SDMS Hazards Module
	A safety event (accident, incident, occurence, near miss) that has occurred?	Reporting a near miss event	Safety Event Investigation	Lead Investigator Final Report & SDMS Safety Event Module
A safety issue raised through the Employee Safety Reporting Program?	Possible widespread or systemic... OHS issues at a specific work area, location, or facility (non-construction)?	Reporting multiple hazards throughout a bus garage	Facility/ Work Area Inspection	Checklist & SDMS Inspections Module
	Possible widespread or systemic... OHS issues at a specific construction site or area (non-diversion)?	Reporting multiple hazards at a station construction site	Construction Inspection	Checklist & SDMS Inspection Module
	Possible widespread or systemic... Safety issues at a specific diversion area?	Reporting multiple hazards on a ROW diversion site	Construction Diversion Inspection	Checklist & SDMS Inspection Module
	Possible widespread or systemic... Safety issues at a specific passenger station?	Reporting multiple hazards at a rail station	Station Inspection	Checklist & SDMS Inspections Module
	Possible specific or limited (not widespread) unsafe condition, work practice, or behavior?	Reporting a person at a specific job site not using proper PPE	Safety Observation/ Limited Inspection	Checklist & SDMS Inspections Module
A safety issue raised through the Local Safety Committee process?	Possible non-adherence to a speed limit?	Reporting speeding at a specific location on the Green Line	Speed/Radar Audit	SDMS Audits Module
	Possible non-adherence to a safety rule?	Reporting bus operators routinely not wearing seat belts	SRCP Audit	SDMS Audits Module
	Possible ineffectiveness of or non-adherence to another safety-related practice, procedure, or policy?	Reporting a possible weakness in an existing maintenance procedure	Internal Safety Audit	SDMS Audits Module
	Possible safety data trend?	Reporting a perceived increase in left turn bus collisions	Data Analysis	Data Analysis Findings Report
	Another known or confirmed hazard or ineffective risk mitigation?	Reporting a hazard confirmed through an investigation, inspection, audit and/or data analysis	SRM Worksheet	SRM Worksheet

ACRONYMS

FIMS: Financial Management Information System
SDMS: Safety Data Management System
SRM: Safety Risk Management

OHS: Occupational Health & Safety
SOP: Standard Operating Procedure

PPE: Personal Protective Equipment
SRCP: Safety Rules Compliance Program

MBTA REFERENCE DOCUMENTS

Table 16 is a list of MBTA-controlled documents incorporated by reference to support the overarching MBTA Safety Program.

Items marked with an asterisk (*), in addition to this Transit Safety Plan itself, are designated as Minimum Standards for Safety within the DPU Standard Operating Guideline Manual. Revisions to these documents shall be coordinated with DPU in accordance with the process defined in the Standard Operating Guideline Manual to ensure consistency and compliance prior to formal approval and execution.

Document Title:	Conformance to:	Chapter/Section Reference in this Safety Plan:
Safety Management System Implementation Plan	§ 673.11(a)(2)	Applicability; PRF 4
Employee Safety Reporting Program	§ 673.23(b); § 673.27(b)(4)	PRF 3; 2.1.4; 6.2.5; 6.2.6
Comprehensive Emergency Management Plan	§ 673.11(a)(6)	2.3
Transit Asset Management Plan	Part of MBTA's overarching Safety Program, including state of good repair and condition assessments.	2.4
Right of Way (ROW) Safety Rulebook	673.11(a)(6)(ii)	
Rules for Operations Employees	673.11(6)(iii)	
Roadway Worker Protection Manual*		
Progressive Discipline Policy – Rules Within the Safety Track*		
Occupational Health & Safety Plan	Part of MBTA's overarching Safety Program, including workplace safety programs and hazardous materials.	2.5
MassDOT/MBTA Railroad System Safety Program Plan	Part of MBTA Safety Program, including FRA requirements.	2.6
Safety Risk Management Standard Operating Procedure	§ 673.25	Chapter 5
Procurement Manual	§ 673.25(d)	5.1.7
Risk Mitigation & Monitoring Standard Operating Procedure	§ 673.27	5.2.6.1
Safety Event Investigation Manual*	§ 673.27(b)(3)	6.2.4; 8.1.3

Document Title:	Conformance to:	Chapter/Section Reference in this Safety Plan:
Configuration Management and Control Program	§ 673.27(c)	6.3.1.2
System Modification Program	§ 673.27(c)	6.3.1.2
Safety and Security Certification Program*	§ 673.27(c)	6.3.1.3
Internal Safety Audit Program	§ 673.37(d)	6.6.0.1
Safety Rules Compliance Program	Part of MBTA's overarching Safety Program.	
Operational Testing and Inspection Program	Part of MBTA's overarching Safety Program.	
Job Hazard Analysis Program	Part of MBTA's overarching Safety Program.	
Drug and Alcohol Policies	Part of MBTA's overarching Safety Program.	
Environmental Management System Manual	Part of MBTA's overarching Safety Program.	

Table 17 MBTA-Controlled Documents Supporting MBTA's Overarching Safety Program

REFERENCE STANDARDS AND GUIDANCE DOCUMENTS

49 CFR Part 672 – Public Transportation Safety Certification Training Program

49 CFR Part 673 – Public Transportation Agency Safety Plan

49 CFR Part 670 – Public Transportation Safety Program

49 CFR Part 674 – State Safety Oversight

Advisory Circular (AC) 120-92B – Safety Management Systems (FAA)

FTA's Bus Template Reference Guide

FTA's Comparison of Definitions: Part 673 versus Part 659

FTA's Roadmap for Transition from the SSPP to the Agency Safety Plan

International Civil Aviation Organization: Safety Management Manual, 3rd edition

MIL-STD-882E – Department of Defense Standard Practice: System Safety

FTA's National Public Transportation Safety Plan

REFERENCE SAFETY STANDARD OPERATION PROCEDURES

SAF-SM-SOP-0001 Mitigation Monitoring Standard Operating Procedure

SAF-SOP-SRM-2024 Safety Risk Management (SRM) Standard Operating Procedure

SAF-SOP-005 MBTA Employee Safety Reporting Program

SAF-SOP-011 Local Safety Committee Meeting Function

SAF-PGM-007 Internal Safety Audit Program

SAF-SOP-008 Internal Safety Audit Procedure

RISK-BASED INSPECTION PROGRAM ADDENDUM

MBTA Agency Safety Plan Addendum - Regarding the Department of Public Utilities' Inspection Authority and Risk-Based Inspection Program

Federal law (49 U.S.C. § 5329(k)(3)) requires that State Safety Oversight Agency ("SSOA") policies and procedures for risk-based inspections shall be incorporated into a Rail Transit Agency's ("RTA") Public Transportation Agency Safety Plan ("ASP"). The Federal Transit Administration's Special Directive 22-34 requires that the Department of Public Utilities' ("DPU") and MBTA (as the Rail Transit Agency) include in MBTA's ASP provisions stating that MBTA will comply with DPU's SSOA Program Standard as it relates to inspections of the RTA and the DPU's Risk-Based Inspection ("RBI") program. DPU's RBI program is set forth in its Standard Operating Guideline Manual Section 5.8. This ASP Addendum serves as MBTA's statement of compliance with DPU's inspection authority and RBI program.

1. MBTA will comply with the DPU's SSOA inspection authority and procedures. MBTA acknowledges and will comply with DPU's authority under 220 CMR 151 to access MBTA facilities to inspect equipment, infrastructure and operations and obtain data as part of DPU's SSOA responsibilities, with or without notice. DPU's inspection, right of entry, and access to data provisions are set forth in 220 CMR 151.01(3), 151.02 (Unannounced Onsite Oversight Activity), 151.07(1)(e) and (3), 151.09(4) and 151.10(5). As also referenced in 6.5.2 of MBTA's ASP, "DPU has the authority and capability to enter MBTA facilities to inspect infrastructure, equipment, records, personnel, and data. . . .," with or without notice. The ASP at 1.3.3 also states, "[DPU's] authority includes the ability of DPU personnel to access MBTA facilities and property both with and without notice to inspect infrastructure, equipment, records personnel and data."

2. MBTA will comply with the inspection and access provisions applicable to MBTA in DPU's SOG Sections 2.7a, 5.6, and 5.6a.

3. MBTA will comply with the inspection provisions applicable to MBTA in DPU's SOG Section 5.8.2 regarding RBI, including inspections with and without prior notice. This includes but is not limited to, when necessary or requested by DPU, MBTA will provide support resources including but not limited to flaggers or facility escorts to ensure DPU staff have the access necessary to conduct inspection and RBI activities. MBTA also will provide DPU with access to safety reporting data, including but not limited to MBTA's Hazard Tracking database, incident reporting data, and inspection data. MBTA will respond to DPU's formal Requests for Information within the designated timeframe indicated in the request or the timeframe in any DPU approved extension.

4. MBTA will comply with the provisions applicable to MBTA in DPU's SOG Section 5.8.3 regarding providing DPU with the data MBTA collects when identifying hazards and assessing and mitigating safety risks, and will provide such data to DPU.

5. Pursuant to 220 CMR 151.10(5) (DPU Access to Information):
   a. Defect Data: Monthly by the 15th day of each month, MBTA will submit to DPU the following data in a tabular format (such as comma-separated value ("CSV")):
      i. Maintenance records and all inspection data contained within the Trapeze and MaxTrax applications for defect tracking, and
      ii. records of revenue vehicles out of service.

   b. DPU will review MBTA work orders on an ad-hoc basis. MBTA will submit work orders to DPU upon DPU's request, in either digital or paper form as needed.
   c. Inspection Data: Monthly by the 15th day of each month, MBTA via the MBTA-DPU Shared Folder, and/or by other electronic means if requested by DPU, will provide the following:
      i. MBTA Inspection records (including all geometry reports and quarterly inspection reports);
      ii. Safety Inspection and report forms associated with safety oversight;
      iii. All speed restrictions; and
      iv. Adherence to inspection schedules (including reports and documentation of inspections not performed, and capital project schedules and progress).

6. DPU and MBTA have consulted on the preparation of the provisions referenced in this RBI program Addendum to the ASP and on policies and procedures regarding DPU access to MBTA's rail transit (subway) system.