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April 11, 2024

VIA ELECTRONIC MAIL

Phillip Eng, General Manager  
Massachusetts Bay Transportation Authority  
10 Park Plaza, Suite 5610  
Boston, MA 02116

Re: DPU's 2023 Triennial Audit of MBTA's Agency Safety Plan and Implementation

Dear Mr. Eng:

The Department of Public Utilities ("DPU"), as the State Safety Oversight Agency for rail transit (subway lines) in Massachusetts, has completed a Triennial Audit of the Massachusetts Bay Transportation Authority's ("MBTA") Public Transportation Agency Safety Plan and its implementation. The Triennial Audit is a requirement of 49 C.F.R. § 674.31 and 220 CMR 151.10(2). DPU has prepared the attached Final Triennial Audit Report.

During the audit, DPU conducted site visits, meetings, interviews, and document reviews in the fall of 2023. The DPU recognizes that there is a degree of overlap between DPU's findings and recommendations, the Federal Transit Administration's ("FTA") Special Directives associated with the Safety Management Inspection ("SMI"), and MBTA's extensive work to address FTA's Special Directives. Given the fact that this triennial audit period (2021-2023) covers much of the same period as FTA's SMI, and the breadth of MBTA's responsibilities and the interconnectedness of the subway system and activities, overlap is unavoidable. Where there is overlap, DPU and FTA will work together to maximize the efficiency of the process and clearly communicate expectations to MBTA.

DPU provided a draft Triennial Audit to MBTA on March 18, 2024, for its review and comment. DPU appreciates the MBTA submitting comments on the draft audit report to DPU on

April 1, 2024. MBTA's comments are added as an attachment to the audit report. DPU has integrated many of MBTA's comments into this final report and provided additional clarity in sections where references were made to the FTA Safety Management Inspection.

Pursuant to 220 CMR 151.07, please provide a corrective action plan ("CAP") for each of the 22 Findings within 60 days of this letter. The MBTA may submit a prioritization plan for CAP development, for DPU review and approval, to ensure that the highest priority CAPs are proposed and reviewed first. For each of the Recommendations, MBTA must submit either written responses or CAPs. For the Recommendations, please submit a schedule within 30 calendar days of the date of this audit report that proposes the timing and sequence of MBTA's responses and/or CAPs on the Recommendations.

Please contact me if you have any questions.

Sincerely,



Robert N. Hanson  
Director  
Rail Transit Safety Division

Encls:

cc:

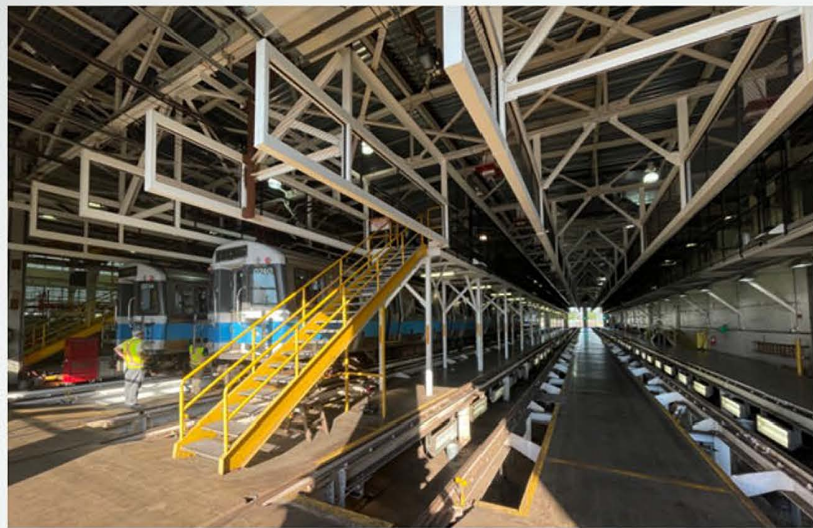
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**2023**

# **TRIENNIAL SAFETY AUDIT OF THE MBTA**

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Massachusetts Department of Public Utilities  
Rail Transit Safety Division  
April 11, 2024

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## Executive Summary

The Massachusetts Department of Public Utilities (“DPU”),<sup>1</sup> Rail Transit Safety Division, administers the State Safety Oversight (“SSO”) Program which oversees the safety of equipment and operations of the Massachusetts Bay Transportation Authority’s (“MBTA”) light and heavy rail subway lines (the Red, Green, Orange and Blue lines).<sup>2</sup> In addition to its day-to-day safety oversight, DPU is required to complete a Triennial Safety Program Audit of the MBTA’s Agency Safety Plan (“ASP”) and its implementation.

The DPU concluded its Triennial Audit and issues this report of its findings and recommendations, which includes an analysis of the effectiveness of the MBTA’s ASP implementation. This DPU audit finds that the MBTA’s ASP meets the regulatory requirements. MBTA’s implementation of the ASP and the safety management system (“SMS”), however, requires more attention and resources.

### Scope

The scope of the Triennial Audit is the ASP and MBTA’s implementation of it, as required by the applicable federal and state regulations, 49 C.F.R. Part 674.31 and 220 CMR 151.10(2). The scope of this Triennial Audit includes data and analyses from all audits, investigations, hazards, and corrective actions since the last Triennial Audit (2020) through June 2023. In addition, each version of the ASP and current minimum standards for safety are reviewed as part of this audit. All safety risk management monitoring (“SRMM”) activities and results during this period are also included, as well as Safety Advisories, Special Directives (in part; see below), and Safety Bulletins issued by the Federal Transit Administration (“FTA”) for the MBTA, DPU, or the transit industry.

### FTA’s Safety Management Inspection and Special Directives

The DPU acknowledges the eight Special Directives (“SDs”) issued by the FTA to the MBTA in 2022. While those SDs overlap with this Triennial Audit, the MBTA’s compliance with the SDs are not the focus of the audit because they are being addressed by FTA. DPU seeks to avoid creating any potential ambiguity or interference in FTA’s comprehensive review and communications with MBTA on the matters addressed in the SDs. Yet, given the breadth of the SDs and MBTA’s extensive work to address them, it was not always possible to fully separate DPU’s audit from the issues the SDs address. As a result, many matters that DPU addresses in the Triennial Audit are intertwined with MBTA’s ongoing activities to address the SDs.

In August 2022, the FTA released the Safety Management Inspection (“SMI”) report for both the MBTA and the DPU. FTA’s report included eight SDs issued to the MBTA, which collectively have a total 631 corrective actions (“CAs”). The evolution of the SMI process required many corrective action plans (“CAPs”) to be revised, resubmitted, and superseded by new CAPs. The DPU staff has been involved in collaborative oversight of all CAPs approved by the FTA. This audit recognizes that the MBTA’s CAPs

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<sup>1</sup> In this Audit Report, references to DPU, the Department, State Safety Oversight Agency, and Rail Transit Safety Division all mean the Department of Public Utilities – Rail Transit Safety Division.

<sup>2</sup> In this Audit Report, references to MBTA, rail transit, and rail system all mean the MBTA’s Red (including Mattapan Trolley), Green, Orange and Blue light and heavy rail subway lines. References to Rail Transit Authority (“RTA”) means the MBTA.

associated with FTA's SMI target key areas for improved performance in developing a strong safety culture at the MBTA. Highlights of MBTA's performance in responding to FTA's Special Directives are summarized below. Future DPU triennial audits will review long-term compliance with the CAPs that lead to long-term safety improvement changes.

## **Audit Design**

The design of this audit (along with internal safety reviews and audits), as well as MBTA's ASP, focus on the FTA's SMS. This Triennial Audit has been designed to include the four SMS components broken down into 12 groupings, including related minimum standards for safety.

- Grouping 1. ASP Updates and SMS Implementation
- Grouping 2. Safety Management Policy
- Grouping 3. Safety Risk Management
- Safety Assurance
  - Grouping 4. Safety Performance Measures and Targets for Improvement
  - Grouping 5. Notifications and Investigations of Safety Events
  - Grouping 6. Compliance with Rules/Procedures
  - Grouping 7. Compliance with Inspection and Maintenance (I&M) Requirements
  - Grouping 8. Compliance with Federal, State, and Local Requirements
  - Grouping 9. Management of Change
  - Grouping 10. Continuous Improvement
- Safety Promotion
  - Grouping 11. Competency and Training
  - Grouping 12. Safety Communication

## Audit Schedules and Activities

The audit team completed multiple required activities according to the Program Standard Operations Guide (“PSOG”) Section 5.3 for Triennial Audits:

- Rail Transit Safety Division (“RTSD”) began planning for the audit in early calendar year 2023;
- RTSD notified MBTA of the Triennial Audit and Documentation Request via letter on August 9, 2023;
- RTSD planned and completed interviews for the 12 audit groupings during the week of October 2-6, 2023. Contractor staff completed track safety training during this visit; RTSD completed field work in between the two formal onsite weeks for this audit; and
- RTSD planned and completed field work and follow-up interviews during the week of December 4-8, 2023.

## Audit Results

The results from this Triennial Audit were analyzed according to the 12 groupings and are shown in this report. The analysis section provides a description of the grouping scope, positive observations, areas that need improvement, recommendations, and findings for each grouping.

The results of this audit include 43 Positive Observations, 22 Findings, and 62 Recommendations. Note that a few Findings and Recommendations are duplicative due to their relevance to more than one Grouping (\* asterisk indicates a duplicate Finding was not added to count).

**Table – Number of Findings and Recommendations by Grouping**

Groupings	Findings	Recommendations	Positive Observations
1. ASP Updates and SMS Implementation	2	5	2
2. Safety Management Policy	0	1	3
3. Safety Risk Management	1	4	4
4. Safety Assurance (SA) – Performance Measures	0	6	4
5. SA – Notifications and Investigations	5	9	5
6. SA – Compliance with Rules/Procedures	4*	5	1
7. SA – Compliance with I&M Requirements	3	6	4
8. SA – Compliance with Federal, State, and Local Requirements	1	5	3
9. SA – Management of Change	3*	3	3
10. SA – Continuous Improvement	0	4	5
11. Safety Promotion – Competency and Training	3	8	4
12. Safety Promotion – Safety Communication	0	6	5
<b>Totals</b>	<b>22</b>	<b>62</b>	<b>43</b>

## Notable Areas of Improvement

In August 2022, FTA released the final Safety Management Report for the MBTA highlighting areas needing improvement within the MBTA transit system. MBTA’s response to FTA’s report led to key changes within the MBTA’s organizational and operational systems during the 2023 calendar year.

During 2023, the MBTA demonstrated successes in defining and gaining FTA approval on CAPs for SDs 22-4, 22-5, 22-6, 22-7, 22-9, 22-10, 22-11 and 22-12. Examples of MBTA’s safety improvement include the following<sup>3</sup>:

Special Directive 22-4:

Within Special Directive 22-4, the MBTA established consistent Personal Protective Equipment (“PPE”) requirements for right-of-way (“ROW”) access. The MBTA actions that led to successful CAP closure, include:

- Analyzed existing MBTA PPE policies;
- Created and distributed an agency-wide, consistent PPE policy;
- Distributed PPE to employees;
- Developed training materials and trained all relevant personnel on new PPE policy; and
- Developed a PPE compliance verification process through the Safety Rules Compliance Program.

The DPU supported the FTA in completion of CAP verification and observed significant gains in both policy implementation and field compliance.

Additionally, the MBTA has closed the following SD 22-4 findings:

*Published updated Rulebook for Operations Employees incorporating PPE requirements.*

The MBTA’s update addressed many important changes including limitations of hours of service to prevent fatigue.

*Raised Tufts Curve Speed Restriction after completing Cologne Egg replacement.*

The MBTA replaced track and followed internal safety processes and procedures.

*Submitted budget requests for Maintenance of Way (“MOW”) equipment and resource needs.*

The MBTA identified the projected needs and costs to ensure that the infrastructure can be brought into a state of good repair (“SGR”).

*Restored Green Line Work Train to Working Order*

Completed work orders for preventive and corrective maintenance for: Green Line Crane Car #4360, Green Line Generator-Pump-Lift (“GPL”) Car #4361, and Green Line Flat Car #4362, along with several other items of supporting documentation, and a successful test train.

Special Directive 22-6:

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3 MBTA also closed Finding 4 of 22-6 during 2023. MBTA also closed other Findings during the early part of 2024 though, as the Triennial Audit is targeted to activity from 2021 through 2023, the Audit Report does not address activities in 2024.



*Ensured that staff working in the Operations Control Center (“OCC”) are certified.*

MBTA daily and monthly reports documented certification dates for OCC staff that worked during the time covered by the report.

*Established policies to ensure OCC staff have sufficient time off between shifts*

MBTA updated the hours-of-service requirements, and submitted daily status reports, to achieve minimum of ten hours off between each OCC staff’s shifts, and maximum shifts of 14 or 16 hours.

*Established Operating Procedures to Ensure No Staff Performing Dual Roles*

MBTA submitted daily reports documenting any instance where a supervisor was required to serve as a dispatcher, and submitted monthly reports that identified any violations of the hours-of-service requirements.

Organizational changes:

The DPU has observed a significant organizational change towards the end of the three years that this audit covers. The leadership has demonstrated increased commitment to ensuring all management and employees are individually accountable for the delivery of exceptional safety performance and implementation of SMS in accordance with the 2023 Agency Safety Plan.

## **Areas Needing Improvement**

The audit identifies areas needing improvement which fall into many categories. A few general themes include Green Line operations regarding train car speed and separation, and Change Management implementation of the Safety Certification Program for new projects. The audit identified other areas where the MBTA has begun the implementation of new processes that require additional activities to further enhance the safety programs.

## **Next Steps**

The Findings and Recommendations require the program documentation (ASP, minimum standards for safety, etc.) to be evaluated and, as appropriate, updated to reflect current activities, and require certain activities to be changed or added to ensure that the program documentation and activities align. The MBTA is required to develop a CAP for each Finding. For each Recommendation, the MBTA is required to provide the DPU with a response addressing it, or, at MBTA’s discretion, a CAP. If the DPU determines that the MBTA’s response is not sufficient, DPU may require a CAP.

## Introduction

The DPU is the Commonwealth's designated Rail Transit SSO Agency ("SSOA") which administers the SSO Program in the state. DPU provides safety oversight of the state's only rail transit agency ("RTA"), the MBTA, including execution of a Triennial Safety Program Audit. The requirements of the Triennial Audit are defined in 49 C.F.R. Part 674.31.

**49 C.F.R. Part 674.31 Triennial Audits: General Requirements.** At least once every three years, an SSOA must conduct a complete audit of an RTA's compliance with its Public Transportation Agency Safety Plan. Alternatively, an SSOA may conduct the audit on an on-going basis over the three-year timeframe. At the conclusion of the three-year audit cycle, the SSOA shall issue a report with findings and recommendations arising from the audit, which must include, at minimum, an analysis of the effectiveness of the Public Transportation Agency Safety Plan, recommendations for improvements, and a corrective action plan, if necessary or appropriate. The RTA must be given an opportunity to comment on the findings and recommendations.

The DPU conducted this Triennial Audit of the MBTA in the third year since the prior audit, as allowed in the regulation.<sup>4</sup>

The DPU concluded the Triennial Audit and issues this report containing findings and recommendations resulting from the audit, including an analysis of the effectiveness of the ASP implementation. The findings and recommendations require the program documentation (ASP, minimum standards for safety, etc.) to be updated to reflect current activities, and also require activities to be changed or added so that the program documentation and activities are aligned. MBTA is required to develop CAPs or Corrective Actions, as needed, based on those findings and recommendations. The DPU provided the MBTA with two weeks to review and comment on the findings and recommendations.

## Scope

The scope of the Triennial Audit is the ASP and its implementation, as required by the applicable federal regulations. The Triennial Audit includes a review of all aspects of the Safety Program at the MBTA. For the MBTA Rail System, the previous Triennial Audits completed by the DPU SSO Program were in 2017 and 2020.

The documents and records considered for this 2023 Triennial Audit are the following:

- FTA Audit of the DPU SSO Program – 2019
- Previous Triennial Audit of MBTA Rail Systems – 2020
- ASPs – 2020-2023, focused on the most recent ASP for 2023
- Minimum Standards for Safety documents referenced by the ASP or otherwise included in the Safety Program.
- Investigations – 2020-June 2023
- Internal Safety Reviews – 2020-2022

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<sup>4</sup> In addition to the Triennial Audit, the DPU performs safety oversight, inspections, data review and analysis, and investigation review of the MBTA subway lines on a daily basis throughout each year and requires corrective actions and other follow up actions on a continuous basis.

- CAPs opened or closed during the audit scope timeframe – 2020-June 2023
- Hazards and Hazard Management, Safety Risk Management – 2020-June 2023
- Responses for FTA Safety Advisories (“SA”), Safety Bulletins (“SB”), SD, or requests – 2020-June 2023
  - SA 20-1 Recommended Actions to Reduce the Risk of Coronavirus Disease 2019 (COVID-19) Among Transit Employees and Passengers.
  - SB 20-02 Inward and Outward Facing Image and Audio Recorders
  - SA 21-1 Fleet-wide Inspection of Wheel Inspection of Wheel Gauging on Rolling Stock.
  - SA 22-1 Rail Car Passenger Door Inspection and Function Testing.
  - SA 22-2 Signal System Safety and Train Control.
  - SA 22-4 Suicide Prevention Signage on Public Transit.
  - SB 22-01 End of Railcar Door Signage and Messaging
- DPU SSO Program Safety Data Analysis Report, March 2023 and August 2023
- DPU Safety Risk Management (“SRM”) Monitoring activities completed through June 2023.

The DPU acknowledges the eight SDs issued by the FTA to the MBTA. As explained in the Executive Summary, while those SDs overlap with this Triennial Audit, the audit does not focus on the SDs (except where specifically noted) because DPU seeks to avoid creating potential ambiguity or interference with FTA’s comprehensive review process and communications on MBTA’s implementation of the SDs.

### **Triennial Audit Design**

The design of this audit (along with internal safety reviews/audits), as well as MBTA’s ASP, focuses on the FTA’s SMS. This Triennial Audit has been designed to include the four SMS components broken down into 12 groupings, including related minimum standards for safety.

#### **Grouping 1. ASP Updates and SMS Implementation**

- Review records and recordkeeping for the SMS and its implementation
- Annual ASP review and update
- Documentation and tracking of Minimum Standards for Safety
- Integration with Public Safety and Emergency Management/Response
- Integration of the Safety Department in policy and procedure development and changes
- Safety Performance criteria, thresholds, and targets for improvement are covered in Safety Assurance (Grouping 4)

#### **Grouping 2. Safety Management Policy**

- Safety Management Policy documentation, signed/endorsed by the Accountable Executive
- Agency’s safety objectives
- Organizational Accountabilities and Responsibilities, Safety-Related Committees
- Employee Safety Reporting System
- Policy Communication throughout the RTA

#### **Grouping 3. Safety Risk Management**

- Hazard Identification
- Risk Assessment and then Prioritization

- Selection and implementation of Mitigations
- Formal hazard analyses in other Safety Program Topics (see Grouping 9)
- Other sources of formal risk assessment, safety and public safety related (see Grouping 1)

**Grouping 4. Safety Assurance – Safety Performance Measures and Targets for Improvement**

- Safety Performance Criteria, Targets, and Measures
- National Safety Plan
- FTA Guidance on Safety Performance Measures and Targets
- Coordination with the State and MPO for Safety Performance Measures and Targets
- SSO Program Standard Requirements/Procedures for Hazard/Risk Identification, Data Collection, and Analyses/Assessments
- Hazard Log, Safety Risk Register, and Corrective Actions/Mitigations Tracking
- CAPs definition, tracking, closure process

**Grouping 5. Safety Assurance – Notifications and Investigations of Safety Events**

- RTA Investigation Procedure(s)
- SSO Program Standard Requirements for Safety Event notifications and investigations
- Emergency Response/Operations Procedures
- Rail Operating Rule Book(s) and Required Training
- Right-of-Way or Roadway Worker Protection (“RWP”) Plan and Required Training
- Command and Control/Train Control Standard Operating Procedures (“SOPs”) and Required Training
- Field Supervision SOPs and Required Training

**Grouping 6. Safety Assurance – Compliance with Operations Rules/Procedures**

- Rail Operating Rule Book and Required Training
- Command and Control/Train Control SOPs and Required Training
- Field Supervision SOPs and Required Training
- Inclement Weather Procedures and Refresher Training
- Operator Certification/Refresher Training and Record-Keeping
- Inspection and Maintenance Manuals, SOPs, and Standards, Supervision, Training, and Competency

**Grouping 7. Safety Assurance – Compliance with Inspection and Maintenance (I&M) Requirements**

- Transit Asset Management (“TAM”) Plan
- Inspection and Maintenance (“I&M”) Manuals, SOPs, Standards, Supervision, Training, and Competency
- RWP Plan and Required Training
- Maintenance (equipment and rail infrastructure/systems) Job-based Certification/Refresher Training

### **Grouping 8. Safety Assurance – Compliance with Local, State, and Federal Safety Requirements**

- Fitness for Duty, Fatigue Management, and Hours of Service
- Drug and Alcohol Policy
- Adherence to Occupational Safety and Health Administration (“OSHA”) Standards

### **Grouping 9. Safety Assurance – Management of Change**

- Configuration Management
- Safety and Security Certification
- System Modifications
- Tracking of Significant Capital Projects
- Safety-Related Procurement Specifications/Requirements

### **Grouping 10. Safety Assurance – Continuous Improvement**

- Tracking the Three-Year Cycle of Internal Safety Reviews (“ISRs”)
- Process for completing ISRs and results, including CAPs
- Assessment of Safety Performance Measures compared to the targets for improvement
- Assuring integration of the Safety Department in policy and procedure development and changes

### **Grouping 11. Safety Promotion – Training and Competency**

- Rail Operating Rulebook and required training
- RWP Plan and required training
- Command and Control/Train Control SOPs and required training
- Field Supervision SOPs and required training
- Inclement Weather Procedures and refresher training
- Operator Certification/refresher training and Record-Keeping
- Maintenance (equipment and rail infrastructure/systems) Job-based Certification/refresher training
- Inspection and Maintenance Manuals, SOPs, and Standards, Supervision, Training, and Competency

### **Grouping 12. Safety Promotion – Safety Communication**

- Policy Communication throughout Transit Agency
- Safety Performance Criteria, Targets, and Measures
- Employee Safety Reporting System
- Hazards Identification and Resolution

The Triennial Audit is not intended to be a comprehensive review in each of the Groupings; however, some aspects of each Grouping are reviewed to assure compliance with the Safety Program,<sup>5</sup> ASP, and

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<sup>5</sup> Safety Program generally refers to the guidance, policies, protocols and other documents that the MBTA incorporates into its ASP.

SMS implementation. In addition, the Triennial Audit follows verification methods provided by FTA in a recommended best practice document.<sup>6</sup>

- **Document Review:** Sampling the RTA’s Safety Program Description and referenced and/or supporting procedures to ensure that each required element of the State’s Program Standard and 49 C.F.R. Part 674 is addressed.
- **Rules Review:** Sampling the RTA’s operating rules and bulletins and maintenance rules and procedures to determine if they have been reviewed and updated on a regular basis, if they have been distributed to appropriate RTA personnel as specified in the Safety Program Description, if training has been offered, and if this process has been tracked.
- **Records Review:** Sampling of the RTA’s records for evidence of implementation of the Safety Program Description and referenced or supporting procedures. Records reviewed and/or sampled may include, but are not limited to, training records, records of employee rules compliance checks, internal safety audit reports, maintenance inspection reports, minutes of safety committee meetings, etc.
- **Interviews with RTA Senior Management:** Discussions held with senior RTA management, including the RTA’s Chief Executive Officer, to assess their knowledge of the RTA’s safety program, as specified in the Safety Program Description and referenced or supporting procedures, and to gauge their commitment to the safety program.
- **Interviews with RTA Safety Personnel:** Discussions held with RTA safety personnel, including the Chief Safety Officer, to assess implementation of the RTA’s safety program, to identify issues in its implementation, and to highlight areas of compliance and non-compliance with Part 674 requirements.
- **Interviews with Other RTA Personnel:** Discussions held with other RTA personnel (including a representative sample of frontline operations and maintenance personnel) to verify their understanding of requirements specified in the Safety Program Description and referenced or supporting procedures.
- **Field Observations:** Observations and sampling conducted onsite at the RTA to observe implementation of the processes and procedures described in the Safety Program Description and supporting or referenced documents, procedures and materials related to the RTA’s safety program.
- **Inspections:** Inspections conducted onsite at the RTA to ensure that the RTA’s infrastructure and equipment is maintained to the specifications identified in the RTA’s standards, procedures, and manuals.

Each of these verification methods has specific strengths and limitations. To adequately assess implementation of each of the Safety Program Description topics, FTA states that more than one verification method should be used. The DPU SSO Program uses all these methods.

### **Triennial Audit Report**

This report is presented with a summary of the Triennial Audit process that was followed. The next section provides a summary of the results of the Triennial Audit by Grouping. The following appendices are provided for transparency of the process.

- Appendix A – Audit Schedule

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<sup>6</sup> FTA’s “Recommended Best Practices for States Conducting Three-Year Safety Reviews” (Revision 1, March 2009).

- Appendix B – MBTA Rail System Description
- Appendix C – Summary of Documents Reviewed
- Appendix D – Audit Checklists, including questions
- Appendix E – Notification of Audit and Documentation Request
- Appendix F – MBTA Comments on Final Draft 2023 Triennial Safety Audit Report

## Audit Schedule and Activities

Based on the DPU SSO Program Standard in 220 CMR Section 151.10(2), the Triennial Audit process included, but was not limited to, the following on-site announced and unannounced activities:

- Observations
- Inspections
- Investigations
- Audits
- Examinations
- Interviews

The planning for this Triennial Audit started early 2023 by following the PSOG Section 5.3 for the Triennial Audit. The DPU SSO Program used a 12 Grouping method for the execution of this audit as described in the Triennial Audit Design section of this report. The 12 Groupings are designed to account for all the original 21 elements of the Public Transportation Agency Safety Plan (“PTASP”) or in the case of the MBTA, the ASP. The requirements for the content of the ASP are described in 49 CFR Part 673. The 12 Groupings checklists were developed and delivered to the MBTA in advance of staff participation in the audit to ensure the appropriate MBTA personnel were available for interviews and field visits.

Next, the audit team completed a Data Analysis Report with a focus on the scope of the audit as described above. This analysis report was completed in March 2023 and updated in August 2023. Schedules of interviews and field work were developed, along with a document request for the audit. A letter dated August 9, 2023, was delivered to the MBTA along with a request for additional documentation. This letter and document request served as notice to the MBTA that the audit had officially been opened and was underway and can be found in Appendix E of this document.

The on-site interviews were scheduled and conducted the week of October 2-6, 2023, and more field inspections were conducted during December 4-8, 2023. Planning activities for these portions, and other activities for this audit, were conducted between DPU and MBTA Safety staff in the weeks leading up to the October interviews.

The audit team began the on-site week in October 2023 by completing Track Safety Training. The initial portion was a virtual learning delivered via MBTA’s Learning Management System. Then the team also participated in the ROW Addendum Compliant training and completed it on October 2, 2023. After this, the audit team performed interviews with MBTA staff at both the Park Plaza and Kneeland Street offices, as well as Charlestown and Wellington Yard.

The team returned the first week of December to conduct field work, visiting the South Boston Switching Station, several substations, Everett Shop, and Innerbelt Shop and Yard for a demonstration of the progress of the Green Line Train Protection System (“GLTPS”).

More detailed reports from each of the visits are available in the appendices of this report.

**Documents received and reviewed for this audit can be found in Appendix C of this report.**



## **Site Examinations and Inspections**

Site examinations and inspections were performed during the audit at the following locations:

Everett Shop

GLTPS project and Innerbelt Carhouse

South Boston Switching Station

Substation – 487 Southampton St

Substation – 236 Southampton St

Twin Pack Jet 68-Megawatt Generator

Carhouses

- Alewife

- Cabot

- Mattapan

- Orient Heights

- Reservoir

- Riverside

Operations Control Center (“OCC”) and Power Control Center (“PCC”) – 45 High St

## **Station Observations and Inspections**

Station observations and inspections were performed during the audit at the following locations:

### **Blue Line – 7 Stations**

-Airport

-Aquarium

-Beachmont

-Maverick

-State

-Suffolk Downs

-Wonderland

### **Green Line – 11 Stations**

- Ball Square

- Brandon Hall

- Chestnut Hill

- Coolidge Corner

- Eliot

- Mission Park

- Newton Center

- Newton Highlands

- Warren St

- Washington St

- Woodland

### **Mattapan Line – 5 Stations**

-Cappen

-Central

- Mattapan
- Milton
- Valley Station

**Orange Line – 10 Stations**

- Assembly
- Community College
- Jackson Square
- Malden Center
- Mass Ave
- Oak Grove
- Roxbury Crossing
- Ruggles
- Stoney Brook
- Wellington

**Red Line – 13 Stations**

- Alewife
- Andrew
- Ashmont
- Davis
- Downtown Crossing
- Fields Corner
- Harvard
- JFK Mass
- Kendall MIT
- Porter
- Savin Hill
- Shawmut
- South Station

## Audit Analysis by Grouping

This section of the Triennial Audit report provides a summary of the results from each of the audit Groupings. Each section provides the following:

- Name of the Grouping;
- Scope;
- Positive Observations;
- Opportunities for Continual Improvement;
- Recommendations; and
- Findings.

Each of the Findings requires a CAP. The Recommendations require at least a response from MBTA and, if MBTA determines appropriate, a CAP. Opportunities for Continual Improvement present areas where MBTA meets the goals of the ASP and can enhance their program to increase safety.

### Grouping 1. ASP Updates and Safety Management System (“SMS”) Implementation

#### Scope

- Review records and recordkeeping for the SMS and its implementation.
- Also use the results of the remaining audit groups to assess the SMS implementation.
- Annual Safety Plan Review and Update, Certification of Compliance
- Documentation and Tracking of Minimum Standards for Safety
- Integration with Public Safety and Emergency Management
  - Security Emergency Preparedness Plan All Elements/Topics
  - Emergency Operations/Management Plan(s) and Related Training for RTA staff and Emergency Responders
  - Drills and Exercises Program
  - Most Recent Transportation Security Administration Baseline Assessment for Security Enhancement Review
- Assuring Integration of the Safety Department in Policy and Procedure Development and Changes
- [Safety Performance Criteria, Thresholds, and Targets for Improvement are covered in Safety Assurance]

The DPU SSO Program is responsible for the MBTA’s ASP requirements pursuant to 49 C.F.R. Part 674.29 (Public Transportation Agency Safety Plans: General Requirements), including updates of the ASP. This includes all of 49 CFR Part 673 (Public Transportation Agency Safety Plans) and the implementation of a SMS at the MBTA.

#### Positive Observations

- The MBTA completes the ASP update by the required deadlines.
- The MBTA has been consistent with its roll out of the new PPE policy and organizational compliance.

## **Opportunities for Continual Improvement**

- The MBTA should use components of the SMS system, such as workshops, to generate more employee engagement on proposed changes to the ASP.

## **Recommendations**

- The MBTA should provide DPU with a draft of ASP updates, for DPU to have sufficient time for an informal review of the document and provide conditional approval before the MBTA presents the document to its Board of Directors for approval.
- The MBTA should perform a formal SMS Implementation Audit to establish where it has made progress with the ASP.
- The MBTA should document the shared services between MBTA and MassDOT concerning rail transit and include an outline of each entity's formal responsibilities.
- The SEMP and COOP should be evaluated to determine if an update is required.
- The Safety Certification Plan and Configuration Management Plan have not been updated since 2015. These plans are being updated pursuant to SD 22-9 and should continue to be updated to also reflect the relevant Recommendations and Findings in Grouping 9 of this audit.

## **Findings**

- The DPU reviewed several documents considered Minimum Standards for Safety (“MSS”) that have been updated but not shared previously with the DPU. Examples include Employee-In-Charge (Roadway Worker Protection) and the Rulebook for Operations Employees. As part of FTA's SMI activities, MBTA developed many documents for its SMS and overall Safety Program.
  - DPU shall be notified at least 30 days prior to any changes to Safety Critical documents, including MSS, and given the opportunity to comment prior to implementation.
- The MBTA completed drills and exercises without formal sharing of Corrective Actions developed in response to those drills and exercises.
  - The MBTA must notify the DPU of all Corrective Actions regarding the subway equipment and operations, including those initiated by MBTA and/or required by other agencies, that arise from the After-Action Reports after completing live drills or tabletop exercises. DPU will track these Corrective Actions until closed. MBTA shall track all CAPs assigned to or initiated by it in a single data repository.

## **Grouping 2. Safety Management Policy**

### **Scope**

- MBTA's safety objectives
- Organizational accountabilities and responsibilities
- Employee Safety Reporting System
- Policy communication throughout MBTA
- Safety Program definition and administration
  - SSPP Element 1. Introduction
  - SSPP Element 2. Purpose, Scope, and Performance Objectives
  - SSPP Element 3. Overview of Management Structure

- SSPP Element 4. Safety Plan Control and Update
- SSPP Element 5. Implementation, Tasks, Activities, and Responsibilities

### **Positive Observations**

- The new General Manager (“GM”) Phillip Eng is fully engaged and committed to the improvement of the infrastructure and is taking a “hands on” approach to organizational improvement.
- The GM is involved in the ASP update process, providing comments and input to the development team.
- The area first responders are trained on the MBTA equipment and conduct drills to enforce that training.

### **Opportunities for Continual Improvement**

- The Safety Department has several vacant positions and is leaning heavily on a few key individuals to do most of the work. MBTA should fill vacancies and develop a clear onboarding plan that identifies the roles and responsibilities associated with new positions.
- Safety culture<sup>7</sup> is difficult to change and MBTA is no exception. The MBTA leadership and Safety Department need to remain constantly engaged with front-line employees during policy and cultural transition.

### **Recommendations**

- Separate from the workforce assessment that MBTA is conducting with respect to the FTA Special Directive 22-9, the Safety Department should develop a strategic plan and forecast the top priorities for safety oversight to help ensure alignment of resource needs.

### **Findings**

- None

## **Grouping 3. Safety Risk Management**

### **Scope**

- Hazard Identification
- Risk Assessment
- Selection and Implementation of Mitigations
- Other sources of formal risk assessment, safety, and public safety related information.

### **Positive Observations**

- From the SMS implementation perspective, the SRM Process is starting to mature, although there is still room for growth.

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<sup>7</sup> Safety culture is comprised of many elements, which may start with leadership that establishes a compelling vision for safety; builds trust, respect, and inclusion (for identifying safety issues and opportunities); prioritizes safety in the selection and development of leaders; leads and rewards a culture that focuses on organizational improvement; and establishes organizational behavior expectations.

- The MBTA is using the Employee Safety Reporting System (“ESRS”). In 2022, MBTA fielded approximately 4,000 calls through the ESRS.
- The MBTA has used consultant support for hazard analysis on capital projects, which has brought additional expertise to their hazard assessment process.
- The organization has identified Origami as the new database to replace IndustrySafe.

### **Opportunities for Continual Improvement**

- To fully implement the SRM process with the staff (Safety Division staff at a minimum), more in-depth and in-person training (not just the LMS) should be considered.
- While improving, the MBTA should continue to develop the tools and capabilities to fully implement SMS, in accordance with the FTA-approved CAP under 22-10.
- Develop a policy for triage and assessment of hazards reported through the ESRS.

### **Recommendations**

- The MBTA should routinely evaluate the current risk level and ensure alignment with executive leadership on risk acceptance.
- The MBTA should do an index of current job hazard analyses (“JHAs”) and determine if the current practice is sufficient or if it should develop updated or additional versions based on changes to the work environment that occurred after FTA’s SMI.
- Develop guidance and employee outreach material for the MBTA staff and management on what is a critical reported hazard via ESRS and what is not.
- The MBTA should ensure its use of the Origami database assists the DPU’s risk-based inspection program.

### **Findings**

- The MBTA has had multiple collisions, near-collisions, and signal violations on the Green Line.
  - For example, at Park Street a risk assessment and diagnostic evaluation shall be conducted at the double yellow light to determine mitigation required to prevent train bunching within the Park Street Station.
  - Additional assessments shall be conducted systemwide to determine additional locations where motorperson visibility to other rail equipment and signals increases the risk of train bunching.

## **Grouping 4. Safety Assurance – Performance Measures**

### **Scope**

- Safety Performance Criteria, Targets, and Measures
- National Safety Plan
- FTA Guidance on Safety Performance Measures and Targets
- Coordination with the State and Metropolitan Planning Organization (“MPO”) for Safety Performance Measures and Targets
- SSO Program Standard Requirements/Procedures for Hazard/Risk Identification, Data Collection, and Analyses/Assessments
- Hazard Log, Risk Register, and Corrective Actions/Mitigations Tracking and Status
- CAPs definition, tracking, closure process

## **Positive Observations**

- The MBTA is successfully working through the SMI activities and corrective actions.
- The Safety Data Analysis Report (“SDAR”) provides a much-needed insight into the data being tracked by the organization.
- The MBTA uses a dashboard to communicate the critical details of Safety to the GM.
- The MBTA coordinates with the MPO and annually communicates performance measures in compliance with 49 C.F.R. Part 673.15.

## **Opportunities for Continual Improvement**

- The MBTA should track Corrective Actions and ensure uniform status updates across MBTA responsible departments.
- The MBTA Safety should assist and engage in CAP development with the responsible MBTA departments to determine if proposed CAPs adequately address the root causes of the precipitating event.

## **Recommendations**

- The MBTA should formally identify its peer organizations and compare its performance measures and targets with the peer group.
- The MBTA should formally develop guidance on how to best address failure to reach its safety performance goals. This would assist in addressing and justifying capital expenses.
- The MBTA should share the GM Dashboard with the DPU during the CAPs and Hazards meetings and documentation distribution.
- The MBTA should ensure that Key Performance Indicators (“KPI”) and status of progress towards those indicators are accessible to frontline employees.
- The MBTA should regularly communicate the Safety Performance results to frontline employees.
- The MBTA Safety Office should study whether the Safety Rules Compliance Program (“SRCP”) is consistent with APTA Standard RT-OP-S-011-10 and other peer organizations. This evaluation should be used to determine whether the program should be further developed to be more effective.

## **Findings**

- None

## **Grouping 5. Safety Assurance – Notifications and Investigations**

### **Scope**

- RTA Investigation Procedure(s)
- SSO Program Standard Requirements/Procedures for Safety Event notifications and investigations
- Emergency Response/Operations Procedures
- Rail Operating Rulebook and Required Training
- RWP Plan and Required Training
- Command and Control/Train Control SOPs and Required Training
- Field Supervision SOPs and Required Training

## **Positive Observations**

- The MBTA is generally successful at notifying the DPU when there is a reportable event via the Everbridge system.
- The revised Investigation Manual is thorough in its process for developing an accident investigation and report.
- The MBTA has identified Safety Sensitive employees and have them enrolled in the FTA's required Public Transportation Safety Certification Training Program ("PTSCTP") individual training plans with the Transportation Safety Institute.
- The MBTA has adopted an Hours-of-Service policy and has included it in the 2023 Rulebook.
- The MBTA has improved on the timeliness of responses to DPU's Information Requests.

## **Opportunities for Continual Improvement**

- The MBTA should continue to track investigation reports and investigational process through closure and subsequent mitigation.
- The MBTA should decrease the amount of time it takes to produce final reports.
- The MBTA should assure collaboration by all responsible MBTA departments with the results of the investigation reports and corrective actions.

## **Recommendations**

- The MBTA should consider a uniform tracking mechanism for both safety rules violations and other key investigative milestones.
- The MBTA should develop improved training for MBTA departments on their investigation responsibilities and practices when responding to a safety event, to more effectively implement the Safety Event Investigation Manual.
- The MBTA should determine the appropriate staffing level required to ensure long-term compliance with regulatory investigation reporting requirements.
- The MBTA should consider training all OCC and Field Supervision on the Continuity of Operations ("COOP") to ensure a smooth response should the need arise.
- The MBTA should train all employees on adverse weather operations and how that may impact safety.
- MBTA should determine which positions outside of Safety, including OCC controllers and supervisors, as well as Field Supervisors, should be designated as Safety Sensitive (designated personnel) for purposes of PTSCTP training.
- MBTA should develop a better process for implementing the SMS principle of the Organizational Accident in accident investigations. This should be used to better address response performance and capabilities, as well as keeping procedures updated.
- MBTA should develop a close call reporting system consistent with the FRA.
- The MBTA shall ensure the Accident Investigation report delivery to DPU is up to date and maintain on-time delivery. Written documentation should be provided in advance for reports that MBTA proposes to submit late.

## **Findings**

- The MBTA has experienced several safety events that include smoke or noxious fumes and the evacuation of patron locations such as stations; however, MBTA decided that these safety events do not meet the required notification threshold for evacuations for life safety reasons.



- Evacuations for life safety reasons, including self-evacuations, or a situation such as a fire; *the presence of smoke or noxious fumes*; a fuel leak; a vehicle fuel leak; an electrical hazard; a bomb threat; a suspicious item or other hazard that constitutes a real or potential danger to any person, must be reported to the DPU as an FTA reportable event and otherwise investigated as an FTA reportable event.
- On multiple occasions for safety events that required notification, the MBTA did not provide timely two-hour notifications or determined that the safety events were not reportable (or notifiable) to the DPU or FTA. On several occasions, safety events were not notified in a timely manner but were later determined to have required notification to the FTA and DPU.
  - The MBTA must identify and retrain all Safety Event Response Team members and OCC controllers in-person on the requirements and thresholds for FTA, DPU, and NTSB safety events and how these events are reported to the FTA, DPU, and NTSB when applicable.
  - MBTA must record six months of on-time two-hour reporting of accident notifications to the DPU.
- On several occasions, MBTA operators have returned to operate revenue vehicles prior to both receipt of Post-Accident Drug Testing (“PADT”) results and the operator being cleared based on those results.
  - The MBTA must ensure that employees and contractors who are sent for PADT are not permitted to return to safety-related functions until cleared with results of the PADT by the MBTA Medical Clinic.
- MBTA Safety’s procedure for notifications and investigations includes a requirement that all departments responding to an accident (required safety event) use a checklist. These checklists are not always completed and available with the investigation documentation.
  - All departments that respond to a safety event must provide an on-scene investigation checklist in accordance with MBTA Safety Event Investigation Manual summarizing their investigative findings.
- MBTA reported that approximately 82% of the reported speeding notifications are false positives.
  - MBTA shall investigate how and why a high percentage of the reported speeding notifications are false positives and evaluate how best to control speeding and more accurately track speeds on the Green Line (until a capital project resolves speeding).

- MBTA shall conduct an analysis of all employee safety rules violations (to include speeding) over the last 12 months. This analysis will provide a breakdown of the investigational findings into the following categories:<sup>8</sup>
  - Cleared
  - Sustained
  - Non-Sustained
  - Unfounded
  - Policy Review (to be combined with either Cleared or Sustained)

If revisions to policies are required, MBTA shall evaluate and develop revised policies associated with this analysis.

## Grouping 6. Safety Assurance – Compliance with Rules/Procedures

### Scope

- Rail Operating Rule Book and required training
- Command and Control/Train Control SOPs and required training
- Field Supervision SOPs and required training
- Inclement Weather Procedures and refresher training
- Operator Certification/refresher training and record-keeping
- Inspection and Maintenance Manuals, SOPs, and standards, supervision, training, and competency

### Positive Observations

- The MBTA has begun to evaluate the data collected during audits (largely SRCP audits), in addition to data collected from actual safety events, to help determine the accuracy of their data. The results of this should regularly be shared within MBTA and formally submitted to DPU.

### Opportunities for Continual Improvement

- MBTA should do more to promote throughout the entire organization the importance of compliance in a rules-based operating environment.
- The Rail Operating Rulebook has too many pages for an operator to carry while operating a train, making it increasingly more difficult for the operator to consult the rulebook in making the

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<sup>8</sup> The categories have the following meanings:

**Cleared** - The investigation of the incident disclosed that it did occur. However, the actions of the employee(s) were justified, lawful, and proper.

**Sustained** - The investigation disclosed sufficient evidence to prove the allegation.

**Non-Sustained** - The investigation failed to uncover sufficient evidence to clearly prove or disprove the allegation.

**Unfounded** - The investigation indicated the alleged acts did not occur.

**Policy Review** - The investigation indicated that the alleged acts did occur, but the action of the employee was consistent with policy, therefore the policy needs evaluation for potential change. When applicable, Policy Review will typically be combined with either Cleared or Sustained.

correct decisions. MBTA should evaluate other RTA processes for ensuring accessible rules documentation.

## Recommendations

- The MBTA should evaluate headways to ensure sufficient rest times for motorpersons consistent with infrastructure restrictions and fatigue management policies.
- The MBTA should retrain all frontline and management level staff on the importance of rule adherence and efficiency testing (SRCP).
- The MBTA should consider if the method of accounting for SRCP activities is diluting their overall compliance rates.
- The MBTA should continue its process of identifying and creating JHAs.
- The MBTA should assess rules violations based upon years of service. If there is a correlation that employees with shorter durations of years of service have a higher violation rate, a training gap analysis should be conducted.

## Findings

- There have been several issues with the results of the SRCP process and DPU requires advance warning for field work related to the SRCP activities so that DPU staff can attend.
  - The MBTA must develop a new scheduling process for SRCP programs, and this process must include DPU notification when scheduling SRCP audits. This process should ensure that there is a risk-based approach to audits based on KPI's and violation data.
- During this Triennial Audit and previous observations (in-person and through safety performance monitoring), DPU observed that the Green Line operations allow moving trains to operate too close together.
  - The MBTA must ensure train separation compliance throughout the system, including in station locations. A process for train separation must address NTSB recommendations.
- In December of 2022, the DPU ordered the MBTA to assess speeding on the Green Line system. During early 2023, of the 79 audits conducted by DPU from January through March, 53 speed violations were recorded. A follow up of 64 audits in May through June 2023 recorded 55 speed violations. The results of the 2023 targeted audits found that speeding on the Green Line increased from 67% to 86% over the posted speed limit. Much of this was outside of compliance with the enforcement guidelines for acceptable buffer speed.
  - The MBTA must consider whether its Green Line speeding oversight is sufficient (until the GLTPS system or alternative system is active) or if it needs to conduct more enforcement.
  - The MBTA must re-evaluate the posted/scheduled trips to determine if they are achievable under the current speed restrictions and speed limits in place and how to best manage the speed restrictions and speed limits going forward.
- On several occasions, MBTA has updated documents designated as MSS without notifying DPU and providing opportunity to review these changed/updated documents.
  - MBTA shall develop a process for all rulebook revisions to be presented to DPU for comment before finalizing it as a MSS.
- On several occasions, the DPU has expressed significant concerns with MBTA's Rules Compliance program.
  - The MBTA must evaluate the Rules Compliance program and determine if it both meets the expectations of its executive management for rules compliance and is consistent with successful peer organizations.

## **Grouping 7. Safety Assurance – Compliance with Inspections and Maintenance**

### **Scope**

- TAM Plan
- I&M Manuals, Standard Operating Procedures (SOPs), standards, supervision, training, and competency
- RWP Plan and required training
- Maintenance (equipment and rail infrastructure/systems) Job-based Certification/refresher training

### **Positive Observations**

- The MBTA is using and developing technology to streamline the pre-trip inspection. MBTA continues to identify opportunities to enhance the exterior vehicle inspections (“EVI”).
- Blue Flag/Blue Sign/Light system is being used with success in the carhouses to help avoid unintended car movements while work is underway.
- The Everett Shop is an excellent resource that is highly capable of producing obsolete parts to the original manufacturer’s specifications.
- The MBTA uses a Special Maintenance Repair Plan and provides submissions to FTA/ DPU.

### **Opportunities for Continual Improvement**

- The MBTA should identify a safe space at each facility where pre-trip inspections will be conducted and final locations should be run through a safety management workshop to ensure stakeholder engagement on hazards.
- The current track condition is not completely known by MBTA. MBTA should continue to implement SD 22-4 programs and sustain them over time, so that the condition of track is more transparent, especially for those responsible for inspection, maintenance, and operations.
- While subject to FTA’s SD-9, due to its critical nature the MBTA should continue to identify gaps within the MOW staffing and develop a plan to address the shortfalls.

### **Recommendations**

- The MBTA should determine the scope of the Everett Shop and determine if it is sufficiently staffed or requires additional equipment/machinery to meet the needs of the organization.
- The MBTA should audit the track and signal inspection program to determine where deficiencies are located and address inconsistencies with regulatory and standard requirements.
- The MBTA should determine whether flagging would be better as a stand-alone work unit rather than attempting to rely on overtime for operators to fill the flagging needs.
- The MBTA should continue to implement the MaxTrax phone system.
- The MBTA’s RFID tag system that it uses on the Blue Line at Orient Heights Carhouse is effective. The MBTA should assess its effectiveness for other locations and determine opportunities for further deployment throughout the system.
- The MBTA should continue to develop checklists for Engineering and Maintenance (“E&M”) vehicles to enter the ROW and perform regular audits of that process.

## Findings

- The MBTA should account for all Power-related infrastructure and determine where vulnerabilities are (splices, old equipment, etc.) to better determine where resources should be allocated within the Power Department and where potential safety issues will arise.
- Over the last few years, MBTA had several instances of track condition issues on nearly every rail line. This includes slow zones and emergency track repairs.
  - The MBTA must evaluate and consider updates to its Light Rail and Heavy Rail Track Standard as the current version dates from 2008.
  - MBTA should formalize the process used within the Special Maintenance Repair Plan to prioritize addressing defects.
- Based on observations over the last few years, there have been maintenance issues out on the rail system that were not being tracked in the maintenance management system or scheduled for corrective maintenance.
  - The MBTA must identify its Track Maintenance backlog and submit a plan to alleviate and bring up to SGR. The plan must scope post-diversion inspection plans to ensure track conditions remain within MBTA standards. This plan must be regularly communicated to the DPU.
  - MBTA must identify a schedule for track inspections that comply with current regulatory requirement for inspection. As part of this effort, MBTA must formally identify a method for tracking identified track defects through resolution.

## Grouping 8. Safety Assurance – Compliance with Federal, State, and Local

### Scope

- Fatigue Management Policy – Hours of Service
- Drug and Alcohol Policy
- Adherence to OSHA/Massachusetts Workplace Safety and Health Program Standards

### Positive Observations

- The MBTA is managing through the Hours-of-Service requirements as prescribed by the FTA during the SMI activities.
- The MBTA has fully considered the updated testing options for drug and alcohol (“D&A”) Testing.
- The Breathalyzer is calibrated daily to ensure accuracy.

### Opportunities for Continual Improvement

- At the time of the audit, the E&M division had yet to migrate to an electronic time system for the purposes of Hours-of-Service calculations.

### Recommendations

- The MBTA should ensure all remaining classifications and work units are switched to a digital time-keeping system for the purposes of Hours-of-Service monitoring.
- As the PPE policy is being evaluated through the SMS lens, the MBTA should assess whether sufficient signage is present at each work location to encourage PPE compliance.

- The MBTA should audit the effectiveness of the fire extinguisher contractor to determine if all applicable units are being serviced as required.
- The MBTA should have a formal process/procedure to monitor what federal and state regulatory changes concerning safety will impact its business units.
- The MBTA should confirm annual certification/calibration of its Breathalyzer(s), evaluate maintenance of the control gas (e.g., if the gas is kept in a cold or hot garage, the test may not be accurate), and confirm certification of the Breathalyzer operators.

### **Findings**

- In the last few years, the MBTA has had issues at specific locations with fire standpipes being routinely inspected and performing properly when used. All locations with fire standpipes should be inspected and assured ready to use.
  - The MBTA must continue to develop a standpipe examination program that brings all fire standpipes into compliance with NFPA 25 within a determined amount of time that is reasonable for the size and complexity of the system. This finding coincides with the requirements of CAPs C23-029 and C20-001, therefore an additional proposed CAP is not required.

## **Grouping 9. SA – Management of Change**

### **Scope**

- Configuration Management Plan
- Safety and Security Certification Plan
- System Modifications
- Tracking of Significant Capital Projects
- Safety-Related Procurement Specifications/Requirements

### **Positive Observations**

- The MBTA has Safety integrated directly into the Capital process.
- Vehicle Engineering is proactive in the Safety Certification process.
- The MBTA utilizes a Global Change Order system for department-wide changes to contract (procurement) language.

### **Opportunities for Continual Improvement**

- The Internal Project Tracking spreadsheet should be formalized and locked by one owner to eliminate opportunity for errors.
- For large projects, a quarterly report may not be enough and more frequent administrative oversight may be needed.

### **Recommendations**

- The MBTA should regularly account for the status of each new capital project in the system and determine if the Safety Certification Tier evaluation originally assigned is still appropriate.
- The GLTPS should be evaluated to determine if it is still a viable mitigation to the original issues presented during the accident investigations.

- As part of its implementation of FTA’s SD-9, the MBTA should evaluate whether Safety staff plus the current level of contractor support is a sufficient resource level to satisfactorily address Management of Change.

## Findings

- The MBTA must reconsider the explanations (in the plans/programs referenced below) of Safety Certification Tiers and requirements for Risk Assessment and Hazard Analysis.<sup>9</sup>
  - MBTA must improve how Safety Certification Tier selection and appropriate communications of changes on capital projects are addressed in the Configuration Management Plan and Safety Certification Program, which MBTA is currently updating. These updated documents must be sent to DPU for comment and concurrence before finalizing. This Finding is intended to compliment, not alter, FTA’s SD 22-9.
- The GLX project prematurely commenced revenue service while several design specifications were not properly constructed (e.g., narrow gauge), which should have been revealed as part of the Safety Certification Program.
  - The MBTA must formalize and ensure transparency and effective communication of changes and safety hazards across its divisions/groups prior to introducing new capital projects into revenue service.
- The MBTA must formalize and consistently use the Change Management Committee structure in the MBTA’s Safety Certification Program (the Safety and Security Executive Review Committee, the Safety Certification Working Group, and the project-specific committees) for transparency and effective communication of changes across divisions/groups, including advance notification to DPU of the meeting schedules.
- The MBTA must submit a CAP that adequately describes short-term mitigation that addresses/assures required separation of Green Line trains while the GLTPS project (or an alternative) is being developed and implemented.

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<sup>9</sup> DPU is currently reviewing MBTA’s Safety Certification Plan that it revised in winter 2024. MBTA can postpone development of a CAP for this Finding until the DPU completes its review, provides comments, and identifies whether a CAP will be needed.

## **Grouping 10. Safety Assurance – Continuous Improvement**

### **Scope**

- Tracking the three-year cycle of internal safety reviews/audits
- Assessment of Safety Performance Measures compared to the Targets for Improvement
- Assuring integration of the Safety Division in policy and procedure development and changes

### **Positive Observations**

- The Internal Safety Review/Audit program is generally performed and completed within a three-year cycle.
- The MBTA generally notifies the DPU of its intent to perform internal audits.
- Outside auditors are being leveraged to audit sections of the Safety Department that could be perceived as a conflict of interest.
- The MBTA established the Quality, Compliance, and Oversight office (“QCO”) to coordinate and ensure implementation of FTA’s SDs.
- Some of MBTA’s Internal Safety Reviews/Audit topics focus on the MBTA Safety functions/activities. To ensure a neutral process and meaningful results, the MBTA used a third-party contractor in 2022 when it last conducted such a review of MBTA Safety. MBTA should continue to use a separate MBTA office or third-party contractor for such audits/reviews of MBTA Safety functions and activities.

### **Opportunities for Continual Improvement**

- The MBTA should be more proactive in ensuring the DPU Rail Transit Safety Division has been properly notified of MBTA’s intent to audit a department, including making personal contact.
- The MBTA Safety should consider onboarding a contractor to assist them in developing a revised approach to the Internal Safety Reviews/Audits that is satisfactory for all stakeholders, including DPU and FTA.
- MBTA could determine the future scope of QCO including its underlying responsibilities for compliance with state and federal requirements.

### **Recommendations**

- The MBTA should consider changing the format of its own audit program to better reflect the Groupings that DPU audits in this Triennial Audit program, or at least perform a gap analysis to ensure that all components of the ASP/SMS are being met.
- The MBTA should analyze the findings and recommendations from each of its audits and evaluate whether they are acceptable or if more attention is required in certain areas, for example, record keeping.
- The MBTA should explain how they interact with MassDOT Shared Services and whether the results and actions satisfy the requirements of the Internal Safety Review/Audit program.
- MBTA Safety has not always communicated the Internal Safety Review/Audit schedule and activities in a timely manner.
  - The MBTA must provide advance notice in writing to DPU of all Internal Safety Review/Audit schedules as they get updated through the year.

### **Findings**

- None



## **Grouping 11. Safety Promotion – Competency and Training**

### **Scope**

- Rail Operating Rulebook and required training
- RWP Plan and required training
- Command and Control/Train Control SOPs and required training
- Field Supervision SOPs and required training
- Inclement Weather Procedures and refresher training
- Operator Certification/refresher training and record-keeping
- Maintenance (equipment and rail infrastructure/systems) Job-based Certification/refresher training
- Inspection and Maintenance Manuals, SOPs, and standards, supervision, training, and competency

### **Positive Observations**

- The Vehicle Engineering trainers are generally the most experienced in the organization and are available for employee refresher training, etc.
- The MBTA is implementing Configuration Management software throughout the organization.
- The Red Line and Orange Line have engineers embedded within the training department.
- The MBTA's use of a Learning Management System ("LMS") is an industry best practice.

### **Opportunities for Continual Improvement**

- The Training department relies on the LMS system to send notifications within MBTA that changes to operational processes need to be made, rather than the Training department preparing training on the changes. The MBTA should provide clearer communication of configuration management changes and evaluate developing training to all departments, rather than relying on the LMS software to make notifications.

### **Recommendations**

- The MBTA Configuration Management Committee should include a representative from Training department to ensure the changes are implemented.
- The MBTA should audit the LMS/Learning Hub curriculum to see how effective it is for frontline employees.
- The MBTA should develop a curriculum for Power Dispatchers in addition to one-on-one training.
- The MBTA should develop checklists of minimum required training for all employee classifications and job performance measures.
- MBTA Training department should track the topic of each Safety Flash that is issued so it can better target refresher training in those areas.
- In accordance with the FTA requirements from the SMI, the MBTA should complete reevaluation and redesign of the ROW/RWP Training and reissue it to all required staff.
- The MBTA should perform a Needs Assessment of each operating division to determine where safety-related competency should be reinforced.

- The Power Training department should determine whether the training curriculum they have is sufficient based on newer and older component equipment manufacturer specifications.

## **Findings**

The following findings are based on experience over the last few years and interviews during this Triennial Audit.

- The MBTA must develop a training curriculum for each division that accurately reflects its role and responsibility for completing the safety event investigation checklists that are completed during safety event investigations.
- MBTA shall work with the DPU to develop all-employee training on regulatory oversight and the role of DPU. This training curriculum must be approved by the DPU, and DPU will participate in content development.
- MBTA shall develop a technical training plan for the investigations team that includes key competencies, training schedules, and opportunities for continued education.

## Grouping 12. Safety Promotion – Safety Communication

### Scope

- Policy Communication throughout Transit Agency
- Safety Performance criteria, targets, and measures
- Employee Safety Reporting System
- Hazards identification and resolution

### Positive Observations

- The MBTA has a good grasp of the requirements of the ASP regarding Safety Policy Promotion, using several different methods of communication, including:
  - Hard copies hanging in facilities;
  - Digital version on T-Stop (internal employee system);
  - Discussion at orientation – with records as evidence;
  - Digital Focus Boards;
  - Direct Mail newsletter to employees' homes; and
  - Everbridge/All Page direct to employee phones.
- The MBTA generally has a good record-keeping system for where and how the messages are delivered for enforcement, including:
  - SDAR data for organizational leader's review;
  - Safety Flashes and Toolbox Talks;
    - Toolbox Talks require longer interaction and discussion with employees from supervisors; and
    - Flashes have the hotline number posted for more info, which is often used.
- The MBTA generally hosts several safety gatherings throughout the year including:
  - Winter Wonderland;
  - SMS Symposium;
  - Keynote Speakers; and
  - Awards Events.
- The MBTA is focused on explaining to each job unit how their roles and responsibilities roll up into the SMS and aids the organization.
- As part of FTA's SMI activities, many documents were developed by MBTA for its SMS and overall Safety Program. Developing and distributing these documents within MBTA as part of Safety Communications are an effective practice.

### Opportunities for Continual Improvement

- There is inconsistency between lines, carhouses, and MBTA on how safety information is transmitted to frontline employees. Employees need a clearer and more consistent delivery method of receiving safety information such as special orders, rule changes, bulletins, safety flashes, and other critical elements to ensure clear lines of communication and smooth implementation.
- There needs to be a clearer delineation of when to use each method of communication to employees.
- The MBTA needs to keep the DPU involved in the documents updated through the SMI and SMS.

- Most of the safety training does not include operations-related safety focus that the organization is experiencing. MBTA should consider adding relevant safety trainings that address current safety concerns at the MBTA.
- Instead of focusing on not making the employee feel “called out” during Safety Flashes, the organization should embrace the “organizational accident” concept and explain how the Safety Flashes communicate identified safety failures at MBTA.
- The MBTA has a process to evaluate the safety hotline calls and determine if it should be a local response or organization wide. These criteria should be further defined to specify when an organization-wide approach should be used.
- As new staff experience training pertinent to job classification, the MBTA should perform an assessment of the trainings and make improvements, as appropriate.

### **Recommendations**

- MBTA stated that often after a Flash, the hotline is used for clarification, indicating that the information may not be presented adequately to frontline staff. The MBTA should audit or examine the dissemination of information at each location and determine a best practice for the organization that will be consistent between work units.
- The MBTA and its “Internal Market Analyst” should finalize its Safety Promotion Program and use it as guidance on which method of communication is to be used in each situation.
- The MBTA should continue to explore requesting space in each of the bargaining unit newsletters to further communicate safety points.
- All communications between Safety and frontline staff, including notes from daily discussions and minutes from meetings, etc., should be analyzed regularly to determine the effectiveness of communications to frontline staff.
- With the recent additions of staff in the middle management level, the emphasis for SDAR and its outputs should be regularly communicated to not lose its importance.
- The MBTA should continue to educate all staff, including its frontline staff, on its adoption of the SMS and how and why the organization has adopted its principles.

### **Findings**

- None
  -

### **Green Line - Summary of Recommendations and Findings**

DPU identified numerous recommendations and findings in this Triennial Audit Report regarding Green Line operations that MBTA needs to address to bridge the time between now and when MBTA has GLTPS (or alternative, if any) operational. DPU recognizes that the MBTA is currently working to gain DPU approval on the CAP associated with the GLTPS. DPU also recognizes that it recently issued a rejection letter on MBTA’s proposed CAP (9281) which predates but covers many of the same Green Line issues identified in this audit report. DPU anticipates that MBTA will coordinate its response to the CAP rejection and the Triennial Audit Findings.

Because the Green Line recommendations and findings fall within multiple Groupings above, they are summarized here for consistency and clarity:

- Recommendations

- Investigate how and why a high number of speeding notifications are false positives, as reported by MBTA (Grouping 5); and
- The GLTPS should be evaluated to determine if it is still a viable mitigation to the original issues presented during the accident investigations (Grouping 9).
- Findings
  - Vehicle Speed:
    - Evaluate how best to control speeding on the Green Line and more accurately track speeds (until a capital project resolves the issue) (Grouping 6);
    - Consider whether MBTA’s management and control of Green Line speed is sufficient or if more MBTA enforcement is required (Grouping 6); and
    - Re-evaluate the posted/scheduled trips to determine if they are achievable under the current speed limits and restrictions in place and how to best manage the speed limits and restrictions going forward.
  - Vehicle Separation:
    - Ensure that train separation through the system is compliant with MBTA standards and addresses the NTSB recommendation (Grouping 6); and
    - Submit a CAP that adequately describes short-term mitigation that addresses and ensures required separation of Green Line trains while the GLTPS project (or alternative, if any) is being developed and implemented (Grouping 9).

## Next Steps

Upon issuance of this final report, MBTA must develop and submit CAPs for the Findings. Per 220 CMR 151.07 (3): “The Transportation Authority shall submit the CAP[s] to the Department for review and formal approval within 60 days of the identification of the Hazard and/or Risk or the event triggering the necessity of a CAP.” The Triennial Audit Report issue date is the start of such 60-day period.

The MBTA may submit a prioritization plan for CAP development, for DPU review and approval, to ensure that the highest priority CAPs are proposed and reviewed first.

For the Recommendations, MBTA must submit either written responses or CAPs. Please submit a schedule within 30 calendar days of the date of this report that proposes the timing and sequence of MBTA’s responses and/or CAPs on the Recommendations.

## **Appendix A – Audit Schedule**

## Massachusetts Department of Public Utilities

### Rail Transit State Safety Oversight (SSO) Program Massachusetts Bay Transportation Authority Triennial Audit Grouping Assignments

#### Schedule

#### **Monday - October 2, 2023**

9:00am

#### **RAC Practical Training**

Various Vital Assurance and DPU staff (Brian Kummerer, Kevin Chandler, John Fedikovich, Jessyca Hayes, others)

BREAK

#### **1:00pm - Grouping 9 – Management of Change**

- Safety Engineering Staff
  - Culp, JP Murray, Rob
  - Fatima
  - 185 Kneeland Street

#### **2:30 - Grouping 3 – Safety Risk Management**

- Safety Engineering Staff
  - Culp, JP Murray, Rob
  - 185 Kneeland Street

#### **Tuesday – October 3, 2023**

9:00am – Kick off of Audit:

#### **Grouping 2 – Safety Management Policy**

- GM's Office (Barbara M)
- 10 Park Plaza

#### **10:30am - Grouping 1 – ASP Updates and SMS Implementation**

- Safety, Mike Catsos, Meghan M F
- 10 Park Plaza

BREAK

1:00 Safety Directive 22-10 Meeting with FTA

\*\*After 22-10\*\*

#### **2:00pm - Grouping 4 – Safety Performance Measures**

#### **3:00pm - Grouping 11 – Training and Competency**

- Safety, Mike Catsos, Meghan M F
- 10 Park Plaza (Tentative)

#### **Wednesday – October 4, 2023**

#### **9:00am - Grouping 12 – Safety Communications**

- Safety, Mike Catsos, Meghan M F
- 185 Kneeland Street

#### **10:30am - Grouping 8 – Local, State, and Federal Compliance**

- Safety, Mike Catsos, Meghan M F
- Kate LeGrow
- Nancy Prominksi
- 185 Kneeland Street

**BREAK**

**1:00pm – Grouping 10 – Continuous Improvement**

- Safety, Mike Catsos, Meghan MF
- 185 Kneeland Street

**2:30pm - Grouping 5 – Notifications and Investigations**

- Safety, David D, Nick, and Asia
- 185 Kneeland Street

**4:00pm - Grouping 6 – Rules Compliance**

- Safety, Mike Catsos
- Natasha Vance
- QCOO
- 185 Kneeland Street

**Thursday – October 5, 2023**

**9:00am - Grouping 7 – Inspection and Maintenance**

This meeting would likely take place at one of the rail shops with a brief tour of the facility following.

- Charlestown
- Rail Shop, Wellington



**Massachusetts Department of Public Utilities  
Rail Transit State Safety Oversight (SSO) Program  
Massachusetts Bay Transportation Authority  
Triennial Audit Second Round – Field Observations**

**Tuesday - December 5, 2023**

This will be guided by MBTA representatives.

9:00am – South Boston Switching Station and Generator

- 2 Traction Power Substations (MBTA Discretion)

Break

1:00pm- OCC Power Dispatch and Rail Dispatch- Demonstration and Discussion

230pm - Capital Delivery – (held at DPU office) Meeting to discuss status of projects, safety certification from a project perspective and the project closeout process (request that GLX and GLTPS representatives are present.)

**Wednesday - December 6, 2023**

The primary purpose of the morning and afternoon sessions will be data collection and examination. This will be guided by MBTA representatives.

9:00am – Everett Shop – Discussion of work conducted at shop and maintaining configuration management.

Break

12:30pm - Inner Belt Car House – General Walkthrough

- GLTPS (Inner Belt) – Request that project team is present to discuss whole project status and carborne activities/testing.

**Massachusetts Department of Public Utilities  
Rail Transit State Safety Oversight (SSO) Program  
Massachusetts Bay Transportation Authority  
MBTA Employee Participation List by Grouping**

**Grouping 1 and Grouping 2**

Michael McCabe  
Olivia Barnhart  
Mike Catsos  
Meghan McDonnell-Finerty  
Tim Lesniak  
Phil Eng

**Grouping 3**

JP Murray  
Mike Catsos  
Steven Culp  
Dennis Lytton  
Robert Ortiz

**Grouping 4**

Emily Growth  
Meghan McDonnell-Finerty  
Mike Catsos

**Grouping 5**

Nick Ferraro  
David DiNapoli  
Asia Williams  
Mike Catsos  
Dennis Lytton

**Grouping 6**

Nancy Prominski  
James Marzello  
Mike Catsos

**Grouping 7**

Joseph Buonopane  
Joe Graham  
Megan Chan  
William Charrette  
Brian Phillips  
Kathy Murphy  
Gary Ientile  
Scott Manning

**Grouping 8**

Sandra Sullivan  
Dennis Lytton  
JP Murray  
Nancy Prominski  
Kevin Murphy  
James Marzelle  
Thad Sortals  
Mike Catsos  
Meghan McDonnall-Finerty  
Antonio Vierra de Andrade  
Kate LeGrow

**Grouping 9**

Mike Catsos  
JP Murray  
Steven Culp  
Robert Ortiz  
Tim Lesniak

**Grouping 10**

Dennis Lytton  
Mike Catsos

**Grouping 11**

Frenia Hunter  
Marye Walker  
Meghan McDonnall-Finerty  
Ashley Murry  
Dennis Lytton  
Mike Catsos

**Grouping 12**

Dennis Lytton  
Meghan McDonnall-Finerty

## **Appendix B – MBTA System Description**

## **MBTA Rail System Description**

### **Overall System Description:**

The Massachusetts Bay Transportation Authority (MBTA), more commonly known as the T, is one of the oldest public transit systems in the United States. It is the largest transit system in Massachusetts and fourth largest Heavy Rail in the country and third largest light rail. The oldest operating rail line, the Green Line, at the MBTA began subway service between Boylston and Park Street Stations in 1897. Currently, the MBTA has approximately 30 miles of double-track light rail service and approximately 39 miles of double-track heavy rail service. While not yet back to 2019 ridership levels, MBTA provided, on average, approximately 375,000 weekday trips (per day) in 2023 on the subway lines.<sup>10</sup>

The MBTA provides subway, bus, commuter rail, ferry, and paratransit service to eastern Massachusetts and parts of Rhode Island.

The Rail Transit System (subway system) includes:

- 30 miles light rail track
- 39 miles heavy rail track
- 81 light rail stations
- 51 heavy rail stations
- 2 light rail lines
- 3 heavy rail lines

### **MBTA Rail Transit System:**

The MBTA rail transit system (or subway) is divided into 2 subsystems: heavy rail and light rail system. Heavy rail includes three rail lines: The Red, Orange, and Blue Lines. Light rail has two rail lines: The Green Line and the Ashmont–Mattapan High Speed Line (designated as an extension of the Red Line but managed as an extension of the light rail system).

Most of the MBTA's subway system runs on the surface and through tunnels. The Green Line and the Orange Line directly connect to the rest of the lines. Park Street station, one of the oldest stations in the system and helps make up the central subway, is the hub where there are direct connections available to the Red, Green and Orange Lines. All four rail lines use standard rail gauge (1435mm or 4'8 ½") but are otherwise incompatible; trains of one line would have to be significantly modified -width, length, dynamic envelope, etc.- to run on another. There are no direct track connections between lines, except between the Red Line and Ashmont-Mattapan High Speed Line, but all except the Blue Line have little-used connections to the national rail network, which in the past have been used for deliveries of railcars and supplies.

Because the various subway lines do not consistently run in any given compass direction, it is customary to refer to line directions as "inbound" or "outbound." Inbound trains travel towards the four downtown transfer stations, and outbound trains travel away from these hub stations.

### **Description of Facilities and Equipment:**

A brief description is provided for all the rail lines, vehicles, maintenance facilities, revenue facilities, training facilities, and administrative facilities below:

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<sup>10</sup> <https://www.mbta.com/performance-metrics/ridership-the-t>

## **Heavy Rail Lines**

**Red Line** – Comprised of two main branches: Ashmont and Braintree. Both the branches originate at Alewife and split into two branches at JFK Station. The Red Line fleet consists of 4 different types of cars:

1. Pullman-Standard (1995-1998), 68 vehicles (22 active)
2. UTDC (1987-1989), 58 vehicles (54 active)
3. Bombardier (1993-1994), 82 vehicles (all active)
4. CRRC (2019-Present), 252 vehicles (14 active)

Currently, only 14 of the new CRRC cars are in service. Once the 252 new CRRC cars are commissioned and accepted in revenue service the older cars will be decommissioned.

These cars are maintained at vehicle maintenance facility, Cabot Yard, located in South Boston. During non-peak and non-revenue hours, vehicles are stored at storage Yards located at terminal stations: Ashmont, Braintree and Alewife.

Red Line vehicles are powered by 600V DC via the third rail system and are equipped with Automatic Train Operation (ATO) and cab signaling. Trains speeds are controlled by cab signals and the door operations are carried out by the operator onboard.

**Orange line** – The Orange Line runs from Forest Hills to Oak Grove and the fleet consists of 2 different types of cars:

1. Hawker Siddeley Canada (1979-1981), 114 vehicles (None in service)
2. CRRC (2018-2023), 100 vehicles so far out of 152 (new)

Older Orange Line vehicles will be decommissioned in phases as the newer 1400 series are commissioned and accepted into revenue service.

These Orange Line vehicles are maintained at vehicle maintenance facility, Wellington Yard, located in Medford. These vehicles may also be stored at Forest Hills and Oak Grove terminal stations during non-peak and non-revenue hours.

Orange Line vehicles are powered by 600V DC via the third rail system and are equipped with Automatic Train Operation (“ATO”) and cab signaling. Trains speeds are controlled by Cab signal, but the door operations are carried out by the operator onboard.

**Blue Line** – The Blue Line runs from Bowdoin to Wonderland and the fleet consists of:

1. #5 East Boston Siemens (2007-2009), 94 vehicles (all active)

This fleet is maintained exclusively at Orient Heights Yard, located in East Boston. In addition to Orient Heights Yard, these vehicles may be stored at Wonderland terminal station during non-peak and non-revenue hours.

Blue line Siemens cars are the only vehicles in the country equipped with both catenary power and third rail power collection systems. The Blue Line uses third rail 600V DC power from Bowdoin to Airport Station (underground) and Overhead Catenary System (“OCS”) 600V DC power from Airport to Wonderland Station (above ground).

The Blue Line utilizes an Absolute Block System (“ABS”) and operates on a wayside signal system. A trip stops system automatically stops the train (to fail safe) in case of a signal violation.

### **Light Rail Lines**

**Green Line** – The Green Line consists of four active branches:

- A Branch, which ran southeast from Watertown station to Packard’s Corner station was retired in 1969.<sup>11</sup>
- B Branch runs east from Boston College Station to Kenmore station
- C Branch runs northeast from Cleveland Circle Station to Kenmore Station
- D Branch runs from Union Square to Riverside station
- E Branch runs northwest from Heath Street Station to Medford/Tufts Station

Branch B and C have exclusive ROW shared on the street and has grade crossings without safety protections, whereas Branch E shares ROW with vehicular traffic and operates on the street. Branch D has exclusive and dedicated ROW.

The GLX extension from Lechmere opened in December 2022 and added another 4.3 miles of track and 7 new stations (including Lechmere) on two routes running parallel to commuter rail Lowell route while crossing the Fitchburg route near the Innerbelt carhouse.

Green line fleet consists of:

1. Type 7 LRV – Kinki Sharyo (1986-1988), refurbished, 100 vehicles, (79 active.)
2. Type 7 LRV-Kinki Sharyo (1997), refurbished, 20 vehicles, (15 active)
3. Type 8 LRV – Ansaldo Breda (1998-2007), 95 vehicles, (81 active)
4. Type 9 LRV – CAF USA (2018-2020), 24 new vehicles, (24 active)
5. Type 10 LRV – Planning for type 10 vehicles to replace type 7 and 8, possibly 9, started in 2014. Contract for 102 new vehicles awarded to CAF USA in late 2022. The vehicles will be assembled in the Elmira, New York assembly plant.<sup>12</sup>

These vehicles are maintained at vehicle maintenance facilities, Riverside and Reservoir Yard and Innerbelt carhouse. In addition to Riverside and Reservoir Yard, during non-peak and non-revenue hours cars are stored at Boston College terminal station.

Green Line vehicles are powered by Overhead Catenary System (“OCS”) 600V DC system. The Green Line generally utilizes a fixed block system in the tunnel and operates on a wayside signal system while the surface running portion generally relies on operations rules to maintain train separation. The Green

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<sup>11</sup> Belcher, Jonathan. “Changes to Transit Service in the MBTA District 1964-2023 with Thanks ...” <http://roster.transithistory.org/MBTARouteHistory.pdf>, August 27, 2023.  
<http://roster.transithistory.org/MBTARouteHistory.pdf>.

<sup>12</sup> “The MBTA Vehicle Inventory Page.” <http://roster.transithistory.org/>, December 28, 2023.  
<http://roster.transithistory.org/MBTARouteHistory.pdf>.

Line Train Protection (“GLTP”) Project is currently underway to add protection to make the system fail safe in case of signal violation by an operator or encroachment of another vehicle.

### **Operations Control Center (“OCC”)**

The OCC located at 45 High Street is the centralized control location from where all supervisory controls and orders are executed. OCC controls the movement of trains, Right-of-Way (“ROW”) access and remote operations/control of most of the field devices, i.e., switches, signals, heaters, etc. The supervisory control system (“SCADA”) facilitates more consistent and timely revenue service and reduces the number of required field personnel. As of this audit, the OCC is preparing for a large expansion.

### **Non-revenue Vehicles**

For use in responding to emergencies, performing maintenance work, keeping the system safe for passengers, and engaging in major construction work, the MBTA operates a large fleet of vehicles and work equipment not used to transport passengers. Non-revenue vehicles and equipment support the entire range of Authority operations, including maintenance service calls, safety-critical situations, field supervision, revenue collection, repair projects, and system upgrade efforts, all of which occur throughout the MBTA’s service district. The Authority owns a fleet of over 1,000 nonrevenue vehicles. These vehicles are of many different types, including rail-mounted cars, rubber-tired cars, trucks, sedans, SUVs, police cruisers, snowplows, track geometry cars, brush cutters, and spreaders. Included in the maintenance-of-way category are crane, bucket, cable, platform, and snow-fighting trucks.

### **MBTA Transit Police Department (“TPD”)**

The MBTA’s Transit Police Department (“TPD”) was formed in 1968. This department has primary jurisdiction over MBTA property and vehicles in each of the 177 cities and towns within the MBTA, and currently has 266 officers and 10 civilian employees. The majority of the MBTA Police Department’s efforts are focused on patrol in Boston and surrounding communities. The department patrols and protects the 5 subway lines to include the Silver Line, 13 commuter rail lines, 6 passenger ferry routes, 181 bus routes and The Ride paratransit system in Massachusetts communities.

### **Power Distribution**

Even though MBTA procures power from commercial utility companies for its needs, the MBTA transforms and distributes electricity over its own to power a network that consists of 10 power substations, 67 unit substations, 48 traction power substations, 3 switching stations, 800 miles of cable, 1,200 circuit breakers, 1,000 switch boxes, 3,325 manholes, 54 passenger station low-voltage switchgears, 2 emergency backup generators, and 2 supervisory control systems to monitor and control all of the power facilities. For the rapid transit and trackless trolley services, the MBTA distributes electricity to power various systems, including signals; communications; station lighting, escalators, and elevators; maintenance and layover facilities; tunnel lighting and ventilation fans; fire alarms; and fare collection. In addition, the MBTA distributes electricity to the overhead catenary system that powers the Green Line, part of the Blue Line, and the Silver Line Waterfront. The third rail system that powers the Red Line, Orange Line, and part of the Blue Line also receives electricity through the MBTA’s power network.

Somewhat unique to the MBTA and transit in general is the ability to generate power through twin Hawker-Sidley jet turbines located at the South Boston Switching Station (“SBSS”) capable of producing 68-Megawatts of power, to supply either the system or the national electric grid as demand dictates.



## **Major Administrative Facilities**

- 10 Park Plaza (State Transportation Building), Boston
- 45 High Street, Boston
- 185 Kneeland Street, Boston
- MBTA Transit Police: 240 Southamptn Street, Boston
- Senior & Transportation Access Pass (TAP) / Disability Office: Charlie Card Store, Downtown Crossing Station concourse (near Arch Street exit), Boston (Temporarily relocated to 10 Park Plaza)
- Customer Service Window: Charlie Card Store, Downtown Crossing Station concourse, Boston (Temporarily relocated to 10 Park Plaza)
- Revenue Operations:
  - 32 Alford Street, Charlestown
- E&M Facilities:
  - 21 Arlington Avenue, Boston MA 02129
- Power Department facility
  - 21 Arlington Avenue, Boston 02129
- Training Facilities:
  - Heavy Rail training school – Cabot Yard
  - Light Rail training school – Riverside Yard
  - Emergency Training Center (“ETC”) – South Boston
  - Signals Training School – Cabot Yard
  - South Boston Switching Station – 696 E 1<sup>st</sup> St, Boston, MA
  - Everett Shops – 80 Broadway, Everett, MA
  - UTC – Charlestown, MA



Figure 1: Map of Massachusetts Bay Transit Authority System

## Appendix C – Summary of Documents Reviewed

### Documents Received Prior to Audit

[Note, the numbering is the document associated with the document request line item.]

- 10. MBTA Drug and Alcohol Policy August 2019\_.pdf
- 11. SAFE1.18.00 2018 MBTA OHS Plan.pdf
- 12. MBTA Safety Employee Safety Reporting Program SAF-SOP-005.pdf
- 13. MBTA SMS Implementation Plan Draft D.docx
- 14 - Configuration Management and Control Program\_FINAL.pdf
- 15 - Safety Certification Program\_FINAL.pdf
- 16 - System Modification Program\_FINAL.pdf
- 17 - 2022-11-17-transit-asset-management-plan.pdf
- 18. Heavy and Light Rail Fleet Plan 2018 - 2022\_Final.pdf
- 2. MBTA CEMP\_FinalDraft.pdf
- 22. MBTA Medical Standards.docx
- 31. 2020 Fire Dept program.pptx
- 34. Criteria for Elevation of Safety Risks to Executive Management.pdf
- 37. FINAL REMINDER Employee Survey We want to hear from you.msg
- 37. FW\_FINAL REMINDER\_Employee Survey – We want to hear from you.pdf.docx
- 38. MBTA\_Strategic\_Planning\_Report.pdf
- 42. Approved MassDOT\_MBTA 270 Plan.pdf
- 47. Current Tracking on Calendar Year 2023 Safety Performance.pdf
- 47. Current Tracking on Calendar Year 2023 Safety Performance.pptx
- 5. MBTA 2022 Transit Safety Plan - Approved Final.pdf
- 56. MBTA\_SMS\_Training\_Report.xlsx
- 57. NEW MBTA\_PTSCPT\_Participants\_Updated 7-31-2023.xlsx
- 6. ROW Safety Rulebook 3rd Edition July 2014 1.pdf
- 67. DPU Corrective Actions - 9-1-23.xlsx
- 67. DPU Corrective Actions - 9.6.22.xlsx
- 69. MBTA Hazard Tracking Log 09.4.2023.xlsx
- 7. Safety Event Investigation Manual Rev 3.2.pdf
- 73. Chapter 1 - MBTA Procurement Logistics.pdf
- 73. Chapter 2 - Prof-services-2021-06-29-.pdf
- 74. 2020\_01\_01-2023\_07\_31 Signal Violations.xlsm
- 74. 2020\_07\_01-2023\_06\_30 Signal Violations.xlsm
- 76 a. - List of Projects from Capital Programs Quarterly Report - FY23Q4.pdf
- 76 c. - Capital Project List -Vehicle Engineering - 8-31-23.pdf
- 8. 008 MBTA Safety Annual Internal Safety Review Program Audit Procedure SAF-SOP-008.docx
- Document Request Tracker 9-1-23.docx
- Document Request Tracker 9-15-23.docx
- Document Request Tracker 9-8-23.docx
- DPU Triennial Document Request.pdf
- EM Management Plan FINAL.pdf
- MBTA Triennial Documents Provided List 09012023.docx

### Folder Number 19 - MBTA Safety Bulletins

- 20-05 Safety Flash -Hands\_Free\_Driving.pdf

- 20-27 Safety Flash - Hand Sanitizer Recall.pdf
- 21-01 Safety Flash - Hazards VS. Risks.pdf
- 21-01 Toolbox Talk - Slips, Trips and Falls.pdf
- 21-02 Safety Flash - Winter Yard Hazards and Risks.pdf
- 21-02 Toolbox Talk - Prevent Incidents Before They Start.pdf
- 21-03 Safety Flash - Form 300A - Injury and Illness Posting.pdf
- 21-03 Toolbox Talk - Feel Safe on the Job.pdf
- 21-04 Safety Flash - Winter Storm Hazards and Risks.pdf
- 21-04 Safety Toolbox Talk - Enhancing Safety Culture.pdf
- 21-05 Safety Flash - Winter Driving Hazards and Risks.pdf
- 21-06 Safety Flash - Commuter Rail Right of Way.pdf
- 21-07 Safety Flash - Fatigue Awareness.pdf
- 21-08 Safety Flash - SMS Fundamentals Training.pdf
- 21-09 Safety Flash - Hazard Communication.pdf
- 21-10 Safety Flash - Safety Data Sheets.pdf
- 21-11 Safety Flash - Working in Extreme Heat.pdf
- 21-13 Safety Flash - Rain and Flood Hazards and Risks.pdf
- 21-14 Safety Flash - Maintenance Facility Housekeeping.pdf
- 21-15 Safety Flash - Slippery Rail.pdf
- 22-01 Safety Flash - Winter Storm Hazards and Risks.pdf
- 22-01 Safety Toolbox Talk - New Years Resolution.pdf
- 22-02 Safety Flash i Winter Yard Hazards and Risks.pdf
- 22-02 Safety Toolbox Talk - National Burn Awareness Week.pdf
- 22-03 Safety Flash - Winter Driving Sazards and Risks.pdf
- 22-04 Safety Flash - General Winter Safety.pdf
- 22-04 Safety Toolbox Talk - Fire Extinguishers.pdf
- 22-05 Safety Flash - Winter Storm Yard Hazards and Risks.pdf
- 22-09 Toolbox Talk - Employee Reporting Methods.pdf
- 22-16 Safety Flash - Defensive Driving Techniques.pdf
- 23-01 - NSM 23 Emergency Preparedness.pdf
- 23-02 - NSM 23 Slips, Trips, and Falls.pdf
- 23-02, Safety Flash - Frostbite Safety.pdf
- 23-03 - NSM 23 Heat-Related Illness.pdf
- 23-03 Safety Flash - PPE Requirements.pdf
- 23-04 - NSM 23 Hazard Recognition.pdf
- 23-04 Safety Flash - Proper Procedures for ROW Access.pdf
- 23-05, Safety Flash - Safe ROW Access.pdf
- 23-06, Safety Flash - Passing Crews on the ROW.pdf
- 23-07A Safety Flash - ROW Worksite Safety.pdf
- 23-08 Safety Flash - Required Items for Bus Operators.pdf
- 23-09 Safety Flash - Near Misses.pdf
- 23-10 Safety Flash - Speed Restrictions.pdf
- MBTA Safety Hotline Poster 2023.pdf

**Folder Number 20 - MBTA Procurement Manual**

- Chapter 1 - MBTA Procurement Logistics.pdf
- Chapter 2 - Prof-services-2021-06-29-.pdf
- Chapter 3 - Procurement Logistics.pdf

## **Folder Number 27. New Rail Operator and Rail Refresher Training Materials**

- 10. Operating in Adverse Weather.docx
- 11. Emergency Codes.docx
- 12. Scent of Danger.docx
- 13. Train Evacuation.docx
- 14. Fan Management Panels.docx
- 15. Emergency Exit Locations.docx
- 16. Crossover Locations and Numbers.xlsx
- 17. Truck Pad Locations.docx
- 18. Swing On & Off Symbols.docx
- 19. Last Train Procedures.docx
- 20. Door Set Up Switches.xlsx
- 22. Overcoming Door Problems.docx
- 23. Disabled Train Procedures.docx
- 24. Lest We Forget Orange.xlsx
- 24. OL Lest We Forget - 5-8-14.pub
- 25. Phone Numbers and Portable Numbers.docx
- 7. Training Outline days 3-20.docx
- 8. Motorperson Study Guide.docx
- 9. Manual Release and Emergency Bypass.docx
- Annual Recertification Complete Sign-off.docx
- Orange Line MP and YMP Annual Recert .pptx
- REV 2014 OL Motorperson Recert Test.docx
- SOP 1.0 SIGN OFF 2.docx
- Type 14 Checklist.xlsx

## **Folder Number 28 - Drills**

Item Number 2020 Subway TTX

- 2020 MBTA Subway Drill TTX AAR Final.pdf
- MBTA 2020 Virtual TTX Participant Situation Manual r1.pdf
- MBTA 2020 Virtual TTX Presentation.pdf

Folder 2021 Subway Exercise

- Final SED Exercise Plan 2021.pdf
- MBTA 2021 Subway Evacuation Exercise AAR Final.pdf

Folder 2022 GLX Subway Exercise

- MBTA 2022 GLX Subway Evacuation Exercise AAR Final.pdf
- ZZ Final GLX Book.pdf

Folder - 2022 Subway Exercise

- 2022 Subway Final Exercise Plan.pdf
- MBTA 2022 Subway Evacuation Exercise AAR Final.pdf

## **Folder Number 35 - Evidence of development of parameters to improve local safety committee meetings**

## **Folder Number 36 - Employee Safety Committee charter**

- Local Safety Committee Charter.docx

## **Folder Number 43- Safety Data Analysis Report (SDAR)**

- 2023 July SDAR - Final.pptx
- 2023 June SDAR - Final.pptx
- 2023 May SDAR - Final.pptx

**Folder Number 44. Board Monthly Safety Report**

- August 2022 Board Report DRAFT.pdf
- October 2022 Board Report DRAFT.pdf
- September 2022 Board Report DRAFT.pdf

**Folder Number 48 - Org Charts**

- 2023 - MBTA Org Chart - Chief of Staff - 8-10-23.JPG
- 2023 - MBTA Org Chart - DGM Operations with names 8-10-23.JPG
- 2023 - MBTA Org Chart - Engineering and Capital - 8-10-23.JPG
- 2023 - MBTA Org Chart - General Manager Org- 8-11-23.pdf
- 2023 - MBTA Org Chart - OCAO Administration with names - 8-10-23.JPG
- 2023 - MBTA Org Chart - SWA System Wide Accessibility with names - 8-10-23.JPG
- Org Chart PDF.pdf
- Safety Org Chart.JPG

**Folder Number 49 - Local Safety Committee Meeting Agendas, Minutes Notes**

- Blue Line Safety Car House Agenda- 052621.doc
- GL July 2020 Agenda.docx
- Light Rail Safety Meeting Minutes 3.25.21 2.docx
- Meeting Minutes 8.28.23.pdf

**Folder Number 50 - Data Analysis Groups Accident Reduction Committee Meeting Notes Agendas**

- BARC June Agenda.pdf
- BARC June Minutes.docx
- BARC May Agenda.pdf
- BARC Minutes - July 2023.pdf
- SARC Meeting 8.29.23.pdf

**Folder Number 52 - MBTA Infrastructure, Facilities, and Equipment Safety Inspection forms**

**Folder Number 54 - Internal Safety Audits**

- 2020 Annual Internal Safety Audit Report FINAL.pdf
- 2021 MBTA Internal Safety Review Annual Report 1 28 22.pdf
- 2022 Annual Internal Safety Audit Report - Final Signed.pdf
- Internal Safety Audit Program Activities Tracker Schedule.xlsx

**Folder Number 72 - Records of Rules Compliance Activities Planned and Completed**

**Folder Number 75 - Records for FTA Safety Advisories and Bulletins**

- FTA Special Directive 22-16 MBTA Response.pdf
- Folder - FTA Safety Advisory 20-001
- Folder - HR Documents

**Folder Number 26 - Rail Infrastructure Inspection Standards**

- Maint and Safety-Standards-Green-Line 7-2008 - #095 (1).pdf
- Maint Standards HRT Jul 15 08 (Rev) - #094.pdf

**Folder Number 61 - Track and Switch Inspection and Maintenance Standards**

- Maint Standards HRT Jul 15 08 (Rev) - #094.pdf

**Folder Number 62 - Signal Inspection Procedures**

- MBTA\_SM.1\_Revision-2\_(Authorized).pdf

- MBTA\_SM.2\_Revision-1\_(Authorized).pdf

**Folder Number 64 - Sample of Rail Passenger Station Inspection Forms**

-2023 Station Inspection Form.pdf

**Folder Number 65 - Substation and OCS and 3rd Rail Inspection and Maintenance Standards**

- AC Breaker Maintenance Sheet.pdf

- Control battery Sheet.pdf

**Folder Number 48 - Org Charts**

- 2023 - MBTA Org Chart - Chief of Staff - 8-10-23.JPG

- 2023 - MBTA Org Chart - DGM Operations with names 8-10-23.JPG

- 2023 - MBTA Org Chart - Engineering and Capital - 8-10-23.JPG

- 2023 - MBTA Org Chart - General Manager Org- 8-11-23.pdf

- 2023 - MBTA Org Chart - OCAO Administration [*sic*] with names - 8-10-23.JPG

- 2023 - MBTA Org Chart - SWA System Wide Accessibility [*sic*] with names - 8-10-23.JPG

- Bus Transportation - July 2023.pptx

- Construction Logistics - July 2023.pptx

- DGM Operations.docx

- E&M - July 2023.pptx

- Information Request Form - DC-23-001.pdf

- Information Request Form DC-23-001 DL final.pdf

- Information Request Form DC-23-001.pdf

- OCC - 2023 - July.pptx

- OCC - July 2023.pptx

- OneDrive\_1\_8-15-2023.zip

- Ops Senior Managers - June 2023.pptx

- Ops Training - July 2023.pptx

- OTA - June 2023 vS.pptx

- Rail Transportation - June 2023.pptx

- Safety Org Chart.JPG

- Vehicle Maintenance - July 2023.pptx

**Documents Received During Audit**

- MBTA\_OpEmployeeRulebook\_2023.pdf

- OL\_MPandYMPRecert\_ParticipantWorkbook\_FINAL.pdf





# Appendix D – Audit Checklists

**Massachusetts Department of Public Utilities (“DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 1**

**Updated:** 9/6/2023

**Grouping 1. Agency Safety Plan (“ASP”) Updates and Safety Management System (“SMS”) Implementation**

- Review records and recordkeeping for the SMS and its implementation.
- Also use the results of the remaining audit groups to assess the SMS implementation.
- Annual Safety Plan Review and Update  
Certification of Compliance
- Documentation and Tracking of Minimum Standards for Safety
- Integration with Public Safety and Emergency Management
  - Security Emergency Preparedness Plan (“SEPP”) All Elements/Topics
  - Emergency Operations/Management Plan(s) and Related Training for rail transit agency (“RTA”) staff and Emergency Responders
  - Drills and Exercises Program
  - Most Recent Transportation Security Administration (“TSA”) Baseline Assessment for Security Enhancement (“BASE”) Review
- Assuring Integration of the Safety Department in Policy and Procedure Development and Changes
- [Safety Performance Criteria, Thresholds, and Targets for Improvement are covered in Safety Assurance]

**Related Documents to Review:**

*1A. Safety Program Documents Update Process*

- Certification letter submitted to DPU Certifying compliance with the regulation, approval by DPU.
- Submission letter for ASP and DPU Approval
- ASP Review Checklist

*1B. Minimum Standards for Safety, Updates, MBTA Safety*

- Various documents collected. Need to consider asking questions regarding.
  - document control,
  - update process,
  - and is Safety a required reviewer and at least concurrence for new and updated safety program related documents?
- How is the inclusion of Safety assured? See document describing the general list of minimum standards for safety.

*1C. SMS Implementation*

- MBTA Transit Safety Plan (“ASP”) 2022, PRF [Preface] 4 MBTA SMS Implementation, 2.7 Records Management

- Review the guidance from the Federal Transit Administration (“FTA”) in the ASP review checklist Sections B, C, E, K, and L.

#### *1D. Integration with Public Safety*

Focus on interactions with first responders, training of first responders, and training for all MBTA employees.

- MBTA Transit Safety Plan 2023, Section 2.3 Emergency Preparedness and Response
- SEPP, sensitive security information (“SSI”)
- TSA BASE Review
- Emergency Action Plan
- Continuity of Operations Plan (“COOP”)
- Building and Station Evacuation Plan
- After Action Report from Drills and Exercises
- Transit Security Awareness training for all employees
- Local first responder training program materials
  - Standard Operating Procedures (“SOPs”) Boston Fire Department (“BFD”), Boston Police Department (“BPD”)

### **Questions and Requests for Grouping 1. ASP Updates and SMS Implementation**

#### **1A. ASP update Process and Approvals**

1. When does MBTA update their ASP? Describe the timeline and regulatory requirements.
2. Please walk through the annual review and update process.
  - a. Who is involved, how communicated, and coordinated for update, who participates?
3. How is the final ASP distributed across the organization?
4. Who has final responsibility for the document?

#### **1B. Minimum Standards for Safety (“MSS”), Updates, MBTA Safety**

5. Has MBTA identified safety program related control documents?
  - a. Have documents identified as MSS been updated and approved by the DPU SSO Program? How often are the MSS documents updated?
  - b. Who updates the Minimum Standards tracking list?
6. What is the process for updates and coordination with SSO program for all aspects of the safety program and SSO program requirements?
  - a. How is feedback from DPU SSO incorporated into final document preparation?
  - b. Have there been any disagreements?
  - c. How would disagreements with the DPU be handled?

#### **1C. SMS Implementation**

7. Please provide a high-level overview of the status of SMS Implementation at MBTA, and short-term next steps.
8. What is the anticipated timeframe to make substantial progress toward a fully functioning SMS at MBTA and what are the most difficult tasks to be completed?
9. Does MBTA monitor and report performance indicators for safety and operations?
  - a. How are the performance indicators communicated to leadership and front-line?
  - b. Is there a record of this communication?
10. Are there significant safety programs or campaigns being rolled out by the MBTA management?

11. What activities are under way to develop an SMS and comply with a recently approved ASP?
12. Please provide an explanation of how documentation and records management will be accomplished, based on ASP Section 2.7.
13. Discuss how the DPU SSO program annual report is delivered to the Board (or equivalent), governor, and FTA.
14. For safety program related control documents (such as Transit Asset Management (“TAM”), Rulebook, RWP, etc.), how are updates made and is Safety a part of the update process? Do updates to these documents require Safety’s review and concurrence?
15. What are the requirements for inclusion of MBTA management and staff for updates of procedures or documents (such as those on the list of minimum standards for safety)?

**1D. Emergency Response, Management, Preparedness, Security/Public Safety**

16. What department(s) are responsible for the security and emergency management documents, and their updates?
  - a. MBTA SEPP
  - b. MBTA Emergency Management Plan
  - c. MBTA Continuity of Operations Plan (“COOP”)
  - d. Overview of TSA BASE Review
17. Is Safety included in updates of these documents?
18. How are activities coordinated to complete the SEPP annual review and update process?
  - a. Who is involved, how communicated, and coordinated for update?
19. Who is responsible for developing the content and conducting first responder training? How is that coordination accomplished?
20. What training is required for first responders? How often is training required to be refreshed?
21. How are drills and exercises planned, scheduled, and conducted? How is coordination accomplished?
  - a. When was the most recent drill and/or exercise?
  - b. Did any corrective action plans (“CAPs”) come from these drills and/or exercises?
22. Does MBTA have an after-action meeting? Are CAPs developed from the meeting? Who is responsible for writing the final report? How is the report presented to the board members and chief executive officer (“CEO”)?
23. What emergency response/preparedness training is required for MBTA employees both Administrative and front-line? How often are they refreshed?
24. Explain the process for coordination of public safety and emergency management planning with outside entities, such as updates of the SEPP and emergency management plan (“EMP”).
25. When was the last TSA BASE assessment and what was the result?
  - a. Were any corrective actions created from this assessment?
26. Provide examples of interactions and coordination with Buffalo City departments supporting MBTA operations/maintenance activities.
  - a. City Management, Emergency Management and Homeland Security, police, fire
  - b. Others?
27. How did MBTA plan and implement COVID 19 procedure?

**Date:**

**Time:**

**Location:** TBD

**Mass DPU - SSO**

**Vital Assurance**

**Requested Attendees**

**Massachusetts Department of Public Utilities (“DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 2**

**Updated:** 09/06/2023

**Grouping 2. Safety Management Policy**

- Safety Management Policy documentation, signed/endorsed by the Accountable Executive
- Agency’s safety objectives
- Organizational Accountabilities and Responsibilities
  - Safety Related Committees
- Employee Safety Reporting System
- Policy Communication Throughout Transit Agency
- Safety Program Definition and Administration

**Related Documents to Review:**

- Review the guidance from the Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section F.

*Agency’s Safety Objectives*

- MBTA Transit Safety Plan ASP, Preface 4 - Safety Management System (“SMS”) Policies
- MBTA Transit Safety Plan ASP, Preface 3 - Safety Management Policy
- MBTA Transit Safety Plan ASP, Section 2.1 Safety Culture

*Organizational Accountabilities and Responsibilities*

- MBTA Transit Safety Plan ASP, Section 4 Organizational Structure & Responsibilities,
- MBTA Safety Organizational Chart;
- MBTA General Managers Team Organizational Chart

*Employee Safety Reporting System*

- MBTA Transit Safety Plan ASP, Section 2.1 Safety Culture
- MBTA Transit Safety Plan ASP, Section 7.0 Safety Promotion
- MBTA Transit Safety Plan ASP, Section 5 Safety Risk Management

*Policy Communication Throughout Transit Agency*

- MBTA Transit Safety Plan ASP, Section 7.2 Safety Communication
- MBTA Transit Safety Plan, Safety Management Policy, PRF 3

*Safety Program Definition and Requirements*

- Massachusetts DPU Rail Transit SSO Program Standard, Appendices, and Procedures, Section 151.03 Public Transportation Agency Safety Plan, and Transit Agencies’ Internal Safety Audits

**Questions and Requests for Grouping 2. Safety Management Policy**

1. Discuss the Agency’s Safety Objectives, Safety Management Policy, and Safety Culture. What is the status of each being rolled out/ implemented?
2. Please explain the Safety Management Policy roll-out and communication throughout the Transit Agency.
3. Discuss the role of Accountable Executive (“AE”) and Chief Safety Officer (“CSO”) at MBTA. Please explain the role of MBTA Safety across the Executive-Level departments.
  - Is the CSO included in all safety program-related decisions made (or documents created/updated)?
  - How are operational documents updated within the organization?
4. Discuss review and approval responsibilities for the Accountable Executive and Board of Directors.
  - How they are involved in ASP, Transit Asset Management (“TAM”) Plan, and Security Emergency Preparedness Plan (“SEPP”) updates, and assuring the safety program is implemented and operating properly?
5. Is the organization chart provided current with all positions and contractor staffing?
6. What is the status of implementing Section 4 Organizational Structure & Responsibilities?
  - How are new hires aware of their roles and responsibilities as it relates to SMS? Is this language in their job description?
7. Walk-through the org charts for executive management, rail operations, rail engineering and maintenance, capital projects, and safety. How many vacancies are in the different departments and where do new employees fit in the org chart? Does MBTA plan on adding any new positions?
8. Provide examples of interactions and coordination with Boston City departments supporting MBTA operations/maintenance activities.
  - City Management, Emergency Management and Homeland Security, police, fire
  - Others?
9. Review how the local safety committees at MBTA are set up and issues roll-up. What authority does each committee have to resolve hazards and safety issues? Are all hazards and safety issues listed in the hazard log?
10. Discuss how the Employee Safety Reporting System is established and used. Are all the hazards reported from the Employee Safety reporting System listed in the hazard log? Where can the employees access the hazard reporting form and turn in the form? Are there ways to report hazards anonymously?

**Date:**

**Time:**

**Location:** TBD

**DPU/VA Audit Team**

DPU

Vital Assurance

**Requested Attendees**

MBTA

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 3**

**Update:** 09/06/2023

**Grouping 3. Safety Risk Management (“SRM”)**

- Hazard Identification
- Risk Assessment
- Selection and Implementation of Mitigations
- Other sources of formal risk assessment, safety and public safety related information.

**Related Documents to Review:**

- Review the guidance from the Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section G.
- MBTA Transit Safety Plan 2023
  - Section 5: Safety Risk Management
    - System Modifications
    - Configuration Management
    - Safety Certifications
- Hazard Management Program 2019-2022
- Configuration Management – Configuration Management and Control Safety Program, 2015
- System Modification – MBTA System Modification Safety Program, 2015
- Safety Certification – MBTA Safety Certification Program, 2015
- Transit Asset Management (“TAM”) Plan
- Rail and Construction Safety Committee Meeting Minutes
- Corrective Action Plans Log, Hazard Log and Notification Tracker
- MBTA Threat and Vulnerability Assessment (“TVA”) (May review on-site)

**Questions and Requests for Grouping 3. Safety Risk Management**

1. What is the status of MBTA’s ASP Implementation for SRM?
2. When and how often is the Hazard Management Program reviewed?
3. Explain and discuss the Hazard Identification process at MBTA. What changes with Safety Management System (“SMS”)/SRM?
4. What additional training is MBTA planning to enhance Hazard Identification for front-line workers and others?
5. Discuss the employee safety reporting system and its use since implementation. How is the employee safety reporting system going to be used to enhance Hazard Identification?
6. Explain and discuss the Hazard Identification, Hazard Log, and Resolution of Hazards? How are the safety committees involved?
7. Discuss the SRM process and definitions of the Risk Matrix for MBTA.
8. Who at MBTA does SRM/hazard analyses? How are they qualified? Does MBTA use a group of subject matter experts (“SMEs”) or contractors?



9. Is Training planned for SRM and hazard analysis? How does MBTA determine who will receive the training? Which department tracks the refresher? Training?
10. When does the Office of Safety close out the hazards in the hazard log?
11. How is SRM used in System Modifications and Capital Projects? How does the MBTA document describe the System Modification process, hazard analysis, interactions with Safety, and Configuration Management?
12. Are there standard procurement requirements that address SRM for capital and technical service projects?
13. How is SRM used in the TAM process? Used in prioritization?
14. When is Safety Certification used in a Capital Project? What is the current version of the Safety Certification Program? Who performs project oversight on behalf of the MBTA?
15. For capital or technical service projects, how are hazard analysis products reviewed and approved? What happens to the hazard analysis after approval?
16. Who (department or title) develops job hazard analyses (“JHAs”)? Who completes JHAs and implements?
17. How are safety risk ratings approved at MBTA? Engineering, Management, Executive Management, Accountable Executive? High Risk (Red), Serious Risk (Orange), Medium Risk (Yellow), Low Risk (Green). Who are the Key Staff? Does it require all of them to approve or can anyone do it?
18. Risk Mitigation Tracking, Risk Mitigation Monitoring Plans – please describe these activities. Are there documents or plans developed for these activities?

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

DPU

Vital Assurance

**Requested Attendees**

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 4**

**Update:** 09/06/2023

**Grouping 4. Safety Assurance – Safety Performance Measurements and Targets for Improvement**

- Safety Performance Criteria, Targets, and Measures
- National Safety Plan
- FTA Guidance on Safety Performance Measures and Targets
- Coordination with the State and Metropolitan Planning Organization (“MPO”) for Safety Performance Measures and Targets
- SSO Program Standard Requirements/Procedures for Hazard/Risk Identification, Data Collection, and Analyses/Assessments
- Hazard Log, Risk Register, and Corrective Actions/Mitigations Tracking and Status
- CAPs definition, tracking, closure process

**Related Documents to Review:**

- Review the guidance from the Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section H, H-1 through H-3; Section J Corrective Action Plans
- Transit Safety Plan 2023, Section 3 Safety Performance, Section 6 (all, focus on safety performance measurement and targets for improvement), specifically Section 6.4 Safety Performance Assessments.
- Orders and Bulletins, 2020-2023
- Pass/Fail Metrics for Training
- Example Safety Data Analysis Reports, 2023
- Executive Safety Committee Meeting Minutes
- Open/Closed Corrective Action Plans (“CAPs”) and supporting documentation, 2018-2023
- DPU Investigation Reports, 2020-2023
- MBTA Hazard Log
- Efficiency Test Records
- Summary table of signal violations, 2020-2022
- Records associated with FTA 2020 COVID-19 Safety Advisory

**Questions and Requests for Grouping 4. Safety Assurance – Safety Performance Measurements and Targets for Improvement**

1. The System Safety Program Plan (“SSPP”) Element 9 section was extensive and described all of the safety data acquisition processes. The 2023 Transit Safety Plan seems to focus on the safety performance measures and results. Is there a separate safety data acquisition plan or documentation?
2. How were the safety performance targets for improvement calculated/selected?
3. Are the safety performance measures and targets for improvement presented to the Board of Directors (or equivalent)?

4. Does MBTA monitor and report performance indicators for safety and operations?
  - a. If so, how are they communicated?
  - b. Is there a record of development and communication?
5. Review safety performance goals and objectives for the last year.
  - a. Did MBTA meet their performance goal? If not, what new measures are they taking to ensure they meet their goals this year?
  - b. How is the Accountable Executive and Chief Safety Officer (“CSO”) briefed and engaged for safety performance measures that do not meet or exceed the targets?
  - c. How are these results communicated to employees across MBTA?
6. Who is responsible for data collection and analysis that builds up to the safety performance measures? What quality control is applied to that data and analysis results?
7. What are executive management and safety responsible for in this process?
8. Is MBTA considering additional safety performance measures to get a headstart on the changes to the regulatory environment? Lagging and Leading?
9. What are the first tracking and monitoring activities planned?
10. Who receives the safety data analysis/measures, how are the results used by executives and other management and supervision? Safety Committees?
11. Are Safety Committees monitored through meeting minutes and outcomes? The DPU SSO program requests inclusion on distribution of the minutes. Minutes from Configuration Management/Transit Asset Management committee meetings? Other meetings such as for capital projects?
12. Discuss the corrective actions determination, development, approval, and tracking process.
13. What analyses are completed for investigations (FTA, DPU, Significant Hazardous Conditions), internal audits, hazard identification and resolution, and corrective actions?
14. Provide a summary of the processes for the following, including interactions with the DPU SSO program:
  - a. CAPs development, tracking, and closure
  - b. Notification, Investigation, and Tracking
  - c. Hazard Log identification, tracking, and closure
  - d. Efficiency Testing/Rules Compliance data collection and analysis
  - e. Signal Violations tracking and analysis
  - f. Evaluation of training, competency, and effectiveness of training
15. Is there training that exists or in development for safety performance measures and improvements?
16. How did MBTA engage with the MPO for safety performance measures and the results of the TAM prioritization?
17. Review the activities reported back for the FTA Safety Advisory on COVID-19? How were these procedures followed and assured by supervision?
18. How are efficiency testing results and rules violations (such as signals violations) reported back to executive management?

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

DPU, Vital Assurance

**Requested Attendees**

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 5**

**Update:** 09/07/2023

**Grouping 5. Safety Assurance – Notifications and Investigations of Safety Events**

- Rail Property Investigation Procedure(s)
- SSO Program Standard Requirements/Procedures for Safety Event notifications and investigations
- Emergency Response/Operations Procedures
- Rail Operating Rule Book and Required Training
- Right-of-Way or Roadway Worker Protection (“RWP”) Plan and Required Training
- Command and Control/Train Control Standard Operating Procedures (“SOPs”) and Required Training
- Field Supervision SOPs and Required Training

**Related Documents to Review:**

- Review the guidance from Federal Transit Administration in the Agency Safety Plan (“ASP”) review checklist Section H, H-4.
- Transit Safety Plan ASP 2022, Section 5.3.1 Hazard Tracking System,
- Safety Event Investigation Manual
- Hazard Management Program
- Employee Onboarding, Contractors, and Rail System Rule Book
- MBTA Emergency Management Plan (Business Continuity and Facilities Evacuations)
- Rail Ops and Operation Control Center (“OCC”) Standard Operating Procedures
- MBTA Employee Handbook
- Employee Medical and Hours of Service policy/procedure
- MBTA Drug and Alcohol Policy August 1, 2019, update
- Boston and local municipality First Responder Training
- Operations Orders
- DPU Investigation Reports, 2020-2023
- Analysis for this audit includes DPU Investigation Reports
- MBTA Corrective Action Plans (“CAP”) and Hazard Log

**Questions and Requests for Grouping 5. Safety Assurance – Notifications and Investigations of Safety Events**

1. Explain and discuss how a safety event is communicated and responded to:
  - a. Notifications
  - b. Response
  - c. Determination of need for Drug & Alcohol testing
  - d. Investigation on-scene
  - e. Return to service.

- f. Investigation analysis
  - g. Investigation reporting
  - h. Development of recommendations and corrective actions.
2. How often is the Safety Event Investigation Manual reviewed and/or updated. How are updates completed, and what approvals are required?
  3. Who are the responders – rail operator, supervisors, management, emergency responders, safety? Are there specific levels/tiers that require Safety to respond on scene?
  4. Are responders required to have specific training? Please describe the process that ensures all relevant personnel are trained in the role during emergency response. Is there refresher training?
    - a. How many Safety and TAPD investigators currently meet the qualifications for 49 CFR Part 672 for PTSCTP?
  5. What are the OCC’s responsibilities? How are procedures and training kept up to date?
  6. Are any changes being made to investigations based on SMS and the organizational accident? Describe an instance where your organization used information collected from an event to describe an organizational accident.
  7. Explain MBTA’s fitness for duty policy, including hours of service.
  8. Explain interactions with DPU for notifications, DPU participation in investigation, submission of investigation reports to DPU.
  9. How are requests for information (“RFI”) from DPU managed by MBTA? Are there ever disagreements with the DPU? If so, how are disagreements with DPU managed?
  10. How often does MBTA miss the 2-hour window for notifications? What is the typical reason for missing the 2-hour notification? Is this recorded anywhere?
  11. How are hazardous conditions or hazards notified and investigated? What is the process and what are the typical hazard-related issues?
  12. For the Business Continuity Plan (“BCP”) Continuity of Operations (“COOP”), please describe the process used to review the document to ensure it is up to date.
  13. How are employees trained in emergency preparedness? Is the current executive team familiar with their roles in the BCP/COOP at MBTA? Explain if so.

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

**Vital Assurance**

**Requested Attendees**

MBTA

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 6**

**Update:** 09/07/2023

**Grouping 6. Safety Assurance – Compliance with Operations Rules/Procedures**

- Rail Operating Rule Book and Required Training
- Command and Control/Train Control Standard Operating Procedures (“SOPs”) and Required Training
- Field Supervision SOPs and Required Training
- Inclement Weather Procedures and Refresher Training
- Operator Certification/Refresher Training and Record-Keeping
- Inspection and Maintenance Manuals, SOPs, and Standards, Supervision, Training, and Competency

**Related Documents to Review:**

- Review the guidance from Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section H, H-2, H-3, and H-5.
- Transit Safety Plan ASP 2022, Section 6 Safety Assurance
- MBTA Emergency Management
- MBTA Operations Rulebook
- Rail Ops and Operations Control Center (“OCC”) Standard Operating Procedures
- Right of Way (ROW) Safety Rulebook, 2014
- MBTA Employee Handbook
- Rail Training curriculum
- Selected recent drill/exercise plans and After-Action Reviews (“AARs”)
- Training for employees – rail training courses, switching, flagging, equipment checklists, on board announcements, etc.
- Table of training metric information
- Pre-Trip Inspections
- Rules Compliance
- Summary table of signal violations, 2020-2023
- Railcar Maintenance Records
- SRCP Manual 2016

## **Questions and Requests for Grouping 6. Safety Assurance – Compliance with Operations Rules/Procedures**

1. Please describe the rules compliance processes/functions by MBTA departments.
  - a. Operators
  - b. Maintenance of Way (“MOW”) Maintenance
  - c. Railcar Maintenance
  - d. OCC
  - e. Field Supervision
  - f. Engineering
  - g. Safety
  - h. Contractors
2. Are there plans to enhance the rules compliance function based on the Safety Management System (“SMS”) implementation.
3. How are Rulebooks (Operations and ROW Safety) rolled out and what training is completed, testing. Describe the process used to update the Rulebook.
4. The rulebook is currently undergoing a revision. How often is the rulebook updated? Describe how the operator has access to the Rulebook while operating a revenue vehicle.
5. Please explain the process for preventability for rail operator involved safety events.
6. What is the refresher rate for training on rules and procedures, operations, and maintenance?
7. Explain how signals violations are identified, verified, and adjudicated. What is the typical outcome? Refresher training?
8. What is the coverage of the Job Hazard Analysis (“JHA”) program? How many does MBTA currently have? What is the process for development of a JHA and how are they used? By whom? How often are they updated?

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

DPU

Vital Assurance

**Requested Attendees**

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 7**

**Update:** 09/07/2023

**Grouping 7. Safety Assurance – Compliance with Inspection and Maintenance (“I&M”) Requirements**

- Transit Asset Management (“TAM”) Plan
- Inspection and Maintenance (“I&M”) Manuals, Standard Operating Procedures (“SOPs”), Standards, Supervision, Training, and Competency
- Right-of-Way or Roadway Worker Protection (“RWP”) Plan and Required Training
- Maintenance (equipment and rail infrastructure/systems) Job-based Certification/Refresher Training

**Related Documents to Review:**

- Review the guidance from Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section H, H-2, H-3, and H-5.
- Transit Safety Plan ASP 2022, Section 3.2 Safety and State of Good Repair, Section 6.1 System Operation/Monitoring, Section 6.2 Data Collection
- MBTA TAM Plan
- De-energization/Energization procedures, Emergency Power removal procedures
- Vehicle Lock Out Tag Out Process
- Special Orders for moves in and out of facilities and yards
- Inspection and Maintenance (“I&M”) Manuals, Sample Vehicle Maintenance Manuals, and Inspection Docs
- Tunnel I&M manuals or SOPs
- Rail Training
- Operations Orders
- Track and Switch Inspections
- Signal Inspection
- Station Inspections
- Overhead Catenary System (“OCS”), Third Rail, and Substation Inspections
- Sample of rail vehicle Pre-Trip Inspections
- Rail Facilities Maintenance – Equipment Plan
- Rail Vehicle-Operations Maintenance Plan
- Rail car Maintenance Records

**Questions and Requests for Grouping 7. Safety Assurance – Compliance with Inspection and Maintenance (“I&M”) Requirements**

1. Please describe the departments that make up the rail system operations and maintenance.
2. For the rail operations and maintenance groups, how many budgeted staff positions are vacant?
  - a. How is the organization recruiting new hires?
3. How are staff competencies assured for rail systems inspections and maintenance?



4. Document Request: Can we get the rates for on-time PM completion for Track, OCS, structures? 2021, 2022 and 2023 so far.
5. Is there a backlog of corrective maintenance? If so, how is this backlog prioritized?
6. Please explain the Transit Asset Management (“TAM”) process at MBTA. What is the state of good repair for the rail line, infrastructure, and rail vehicles?
7. Please provide a status of corrective maintenance in the rail yards and sidings. What is the schedule of repairs/capital projects and what are the shorter-term mitigations, especially for rail securement in curves and switches?
8. Describe the inspection and maintenance in the rail systems that are provided by contractors, such as for the tunnel.
9. What is the state of good repair of the OCS/Third Rail system in the tunnels? Above ground?
10. What is the state of good repair for the signals systems? Please provide an explanation of the command and control and the status of maintenance – PMs and backlog of corrective maintenance.
11. Please explain the role of the radio system in command and control of the rail systems and operations and maintenance. Is the Radio system reliable in all corners of the system? Where are the vulnerabilities?
12. How do major system modifications and safety certifications get turned over to the operations and maintenance departments from a capital program?
13. Please explain the configuration management process for changes in the existing rail systems.
14. Please explain the planning and completion of the work zone/single tracking process.
15. Please describe and provide the de-energization and energization processes for all departments involved from OCC to OCS/Third Rail, Track, Signals and back.
16. Please describe and provide documentation for lockout tagout processes at MBTA. What departments are included in the lockout tagout processes.

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

DPU

Vital Assurance

**Requested Attendees**

MBTA

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 8**

**Update:** 09/07/2023

**Grouping 8. Safety Assurance – Compliance with Local, State, and Federal Safety Requirements**

- Fatigue Management Policy – Hours of Service
- Drug and Alcohol Policy
- Adherence to Occupational Safety and Health Administration (“OSHA”)/Massachusetts Workplace Safety and Health Program (“WSHP”) Standards

**Related Documents to Review:**

1. Review the guidance from Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section H, H-2, H-3, and H-5.
2. ASP 2023, Section 6 Safety Assurance, Section 6.1 System Operation/Monitoring, Section 6.2 Data Collection, Section 6.3 Data Analysis
3. Operations and Maintenance Rulebook
4. Right of Way (“ROW”) Safety Rulebook 2014
5. Employee Handbook and Contractor Safety
6. Employee Medical Requirements
7. Employee Hours of Service policy/procedure
8. Drug and Alcohol Policy
9. De-energization/Energization procedures, additional materials pending, Emergency Power removal procedures.

**Questions and Requests for Grouping 8. Safety Assurance – Compliance with Local, State, and Federal Safety Requirements**

**18. Compliance with Local, State and Federal Regulations**

1. Discuss responsibilities for these safety related regulations (Local, State and Federal), and how the responsibilities are distributed (“operations” vs. “safety” responsibilities)?
2. Does MBTA have a comprehensive and continuous training process for employees and contractors who are exposed to the right of way and maintenance areas?
  - How often is the training scheduled?
  - Is it demand-driven or regularly scheduled?
  - Is it available online, or does it have to be taken on-site?
  - Are employees/contractors aware when their training expires? Is there a tracker that tracks an individual’s training date and its expiration dates?
3. Contractors bidding on MBTA work should adhere to safety rules regarding contractors and subcontractors and must have safety supervisors monitoring their employees.
  - Is there a plan or procedure to monitor contractor teams while they are on-site to ensure compliance with MBTA safety policy?
  - Is a badge or card issued to identify qualified persons in the ROW?

- Is there standard procurement/contract language for contractors and sub-contractors requiring them to adhere to safety rules when working on the MBTA ROW?
- 4. How do MBTA managers stay current with governmental (state and federal) actions that change and added. new laws and regulations?
  - Who is responsible for employee training of changes?
  - Is it toolbox training, or more formal?
- 5. Please explain MBTA's current Hours of Service policy.
  - How does MBTA ensure compliance? What occurs if there is a violation?
- 6. What are the required Personal Protective Equipment ("PPE") requirements and are there notices/signs of the requirements posted in facility locations?
  - Does the project manager verify the RWP are up to date prior to working in the work zone?

## **19. Hazardous and Regulated Materials**

7. Who in the Safety department is responsible for maintaining MBTA Safety Data Sheets ("SDS")?
8. Where are the SDS sheets stored? Is an online portal readily accessible for all employees?
9. What is the process/procedure for adding new chemicals and ensuring they are added to the SDS?
10. Who is responsible for annual spill and chemical training?
  - Is this tracked with training?
  - Who is required to take it? Contractors?
11. Who is responsible for spill response and reporting?
12. Has a recent hazardous material review of the property been performed by a qualified firm?
13. Discuss that a qualified person regularly inspects the properties to verify proper and operable fire suppression systems, proper fire lane markings, and storage of flammable materials.

## **20. Drug and Alcohol Abuse**

14. Is the MBTA drug and alcohol policy current and up to date with respect to all FTA regulations? When was it last updated?
  - Does it include the new final rule that went into effect June 1, 2023, which includes industry drug testing program to allow oral fluid testing if the property desires?
15. Who within the MBTA Organization are considered safety-sensitive employees?
16. Is Substance Abuse Program ("SAP") training being provided for supervisors, as required by FTA regulations (49 CFR Part 655)?
17. Is Reasonable Suspicion Training being provided as required by regulation?
18. Who is authorized to make a reasonable suspicion determination?
  - Is a manager or supervisor required to test an employee if someone reports one of their employees?
19. Does MBTA have other related procedures to determine fitness for duty?
20. Have collection sites been reviewed and audited (independent or by MBTA) for compliance? What is the name of the testing site?
21. Are light rail operators being transported for testing within two (2) hours after they have been involved in incidents/accidents?
  - If not, are the reasons fully documented?

22. Are random drug and alcohol tests being conducted for operators and maintenance personnel according to guidelines?
  - How are random participants selected? Is it third party or are they selected in-house?
23. Is the testing spread out over a 24-hour period evenly? Please provide evidence.
24. Has FTA recently performed a drug and alcohol program audit?
  - Is that audit available for review by the audit team/DPU?
25. Tests not conducted within the required time limits should be documented to determine sufficiency of documentation.

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

Vital Assurance

**Requested Attendees**

MBTA

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 9**

**Update:** 09/07/2023

**Grouping 9. Safety Assurance – Management of Change**

- Configuration Management Plan (“CMP”)
- Safety and Security Certification Plan (“SSCP”)
- Tracking of Significant Capital Projects
- Safety-Related Procurement Specifications/Requirements

**Related Documents to Review:**

- Review the guidance from Federal Transit Administration (“FTA”) in the ASP review checklist Section H, Management of Change H-6 and H-7.
- Transit Safety Plan 2023, Section 6 Safety Assurance, Section 6.3.2 Management of Change
- Configuration Management and Control Program
- MBTA Transit Asset Management (“TAM”) Plan
- Safety Committee Meeting Minutes
- MBTA Procurement Policy
- MBTA System Modification Safety process
- MBTA Safety Certification process for Capital Projects (Example: GLX)
- Capital Projects Procurement Specification for Construction Safety and General Conditions

**Questions and Requests for Grouping 9. Safety Assurance – Management of Change**

1. What are the current Capital Projects and how are they tracked by the MBTA? Are there executive meetings or briefings about the state of each project? Are there committee meetings by project?
2. Please explain/describe the safety-related requirements included in contracts for capital projects and services. This includes hi-rail equipment, flagging, RWP, etc.
3. What are MBTA’s plans for enhancing Management of Change activities based on implementation of SMS through the ASP?
4. Is there a cross-reference to the Capital Projects planned and underway with the TAM Plan and priorities? Can that be shared with DPU?
5. Please explain the typical interactions for Capital Projects and the DPU SSO program.
6. For a given significant Capital Project, please explain the required hazard analyses that are expected from contractors or MBTA. Who within MBTA is required to review and accept these hazard analyses?
7. Does the MBTA have standard Design Criteria and Safety-Related Design Criteria for these Capital Projects? Who is responsible for updating these Design Criteria? How are changes to Design Criteria managed and approved within MBTA?
8. Describe the Configuration Management process from beginning to end. What types of changes trigger a Configuration Management meeting?

9. Is there a regular Configuration Management committee meeting? Who is present at these meetings?
10. Does MBTA plan on updating the Configuration Management plan? Is there a Standard Operation Procedure (“SOP”)? Describe the involvement by department. How are new members of the organization exposed to the committee?
11. Please use an example of the Configuration Management (or similar) Committee from the last 3 years and describe the process from beginning to end.
12. How is the Configuration Management process different from the System Modification process?
13. Using an example from the past 3 years, describe a project that went through the System Modification or Safety Certification process (GLX), then describe how a future project (GLTPS) will differ, if at all.
14. Please describe the interactions for the projects with the City that include stations and right of way.
15. Please explain the process of developing, disseminating, and completing a Work Plan and work zone.
16. For a capital project (System Modification, Safety Certification, and/or Procurement controls), what are the roles for each of the Departments, such as engineering, operations, maintenance, and safety?

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

DPU –

Vital Assurance

**Requested Attendees**

MBTA

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 10**

**Update:** 09/07/2023

**Grouping 10. Safety Assurance – Continuous Improvement**

- Tracking the Three-Year Cycle of ISAs
- Assessment of Safety Performance Measures Compared to the Targets for Improvement
- Assuring Integration of the Safety Department in Policy and Procedure Development and Changes

**Related Documents to Review:**

- Review the guidance from FTA in the Agency Safety Plan (ASP) review checklist Section H, Continuous Improvement H-8 and H-9.
- Transit Safety Plan ASP 2022, Section 6 Safety Assurance, Section 6.5 Continuous Improvement
- Open/Closed Corrective Action Plans (“CAPs”) and supporting documentation, 2020-2023
- MBTA internal safety audit plan (2020-2022)
- Internal safety audit report 2022
  - Recommendations, findings, CAPs (2020-2022)

**Questions and Requests for Grouping 10. Safety Assurance – Continuous Improvement**

1. Who within MBTA is responsible for planning, developing, and conducting the internal safety audits?
2. Discuss the responsibilities of the Office of Safety related to the internal audit process.
3. What is the MBTA approach to Internal Audits under the ASP and SMS?
  - What is the process for developing checklists and providing them to DPU for review? Have the checklists for the audits been shared in advance with the DPU? Have the results been shared?
4. How many Internal Safety Audits have been completed to date for the next cycle? What were the results of these audits?
5. Does MBTA incorporate outside entities (other city department, contractor, or office) to complete internal safety audits? If not, does MBTA plan to in the future?
  - What is the scope and requirements and qualifications for the third party?
  - Who receives the contractor’s audit report?
  - How are the results of the contractor’s audit report used to develop CAPs?
  - How many CAPs have been developed in this cycle from the ISA’s?
6. Are there other audits conducted (of the project and related activities)? By whom?
7. What other internal audits related to the safety program are completed within MBTA?
  - How are those audits and results coordinated?
8. How are issues and accusations of fraud, waste, or abuse handled, audited/investigated?

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

Vital Assurance

**Requested Attendees**

MBTA



**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 11**

**Update:** 09/07/2023

**Grouping 11. Safety Promotion – Training and Competency**

- Rail Operating Rule Book and Required Training
- Right-of-Way (“ROW”) or Roadway Worker Protection (“RWP”) Plan and Required Training
- Command and Control/Train Control Standard Operating Procedures (“SOPs”) and Required Training
- Field Supervision SOPs and Required Training
- Inclement Weather Procedures and Refresher Training
- Operator Certification/Refresher Training and Record-Keeping
- Maintenance (equipment and rail infrastructure/systems) Job-based Certification/Refresher Training
- Inspection and Maintenance Manuals, SOPs, and Standards, Supervision, Training, and Competency

**Related Documents to Review:**

- Review the guidance from Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section I Safety Promotion, I-1.
- Transit Safety Plan 2022, Section 8 Safety Training
- Operations Rulebook
- Rail Ops and Operation Control Center (“OCC”) Standard Operating Procedures
- ROW Safety Rulebook
- Employee Handbook
- New hire employee packet
- New hire packet, ROW, and ROW recertification training materials
- Operator and Maintenance training examples
- Table of training metric information.
- Example emergency awareness training course materials
- First responder training program materials

**Questions and Requests for Grouping 11. Safety Promotion – Training and Competency**

**Training by Employee Type or Others**

1. Is there a Training Plan by employee type?
2. How is Safety Management System (“SMS”) training being incorporated with other training?
3. How are modules being developed, what is the process?
  - a. All Employees, new and refresher
  - b. Administrative staff, new and refresher
  - c. Senior Leadership and Management, new and refresher

- d. OCC, new, rulebook, track access, RWP, and refresher, how is competency assured?
- e. Power/Load Control, new, rulebook, track access, RWP, and refresher, how is competency assured?
- f. Field Supervision, new, rulebook, track access, RWP, and refresher, how is competency assured?
- g. Rail Operators, rulebook, track access, RWP, and refresher, how is competency assured?
- h. Facilities and Rail Equipment Maintenance, by position, new, rulebook, track access, RWP, and refresher, how is competency assured?
- i. Shops and Yards staff, by position, new, rulebook, track access, RWP, and refresher, how is competency assured?
- j. Maintenance of Way, by position, new, rulebook, track access, RWP, and refresher, how is competency assured?
  - i. Track and Switches
  - ii. Overhead catenary/contact system
  - iii. Power and Substations
  - iv. Signals and Communications
  - v. Elevators and Escalators
  - vi. Stations
- k. Engineering, Capital Projects, by position, new, track access, RWP, and refresher, how is competency assured?
- l. Supervision, Safety Rules Compliance, new, rulebook, track access, RWP, and refresher, how is competency assured?
- m. RWP and Flagging
- n. Winter Operations
- o. When does the training department start winter operations training?
- p.
- q. Contractors
  - i. On the ROW – track access, RWP
  - ii. Work Zones and Contracted Services, operations on the ROW, Hi-Rail
- r. Emergency Responders and Awareness Training, track access, RWP
- s. Participation in Drills and Exercises

### **Questions and Status from Investigations**

1. Please explain the process for review of rail operator responsibility following a safety event. Please include yard-persons and field supervision, as appropriate.
2. What are the factors considered for re-training and discipline for these performance reviews? Is there a criteria/ threshold for re-training?
3. Is there a procedure or guidelines for these activities of determining preventability?
4. Who (titles) have the responsibility of determining preventability and training to be completed?
5. How is input from After Action meetings used and integrated back into training?
6. Please describe Training's involvement with developing immediate mitigations and corrective actions following a safety event.
7. Who are "designated staff" for purposes of FTA compliance with 49 CFR Part 672 and what is the status of completing the Public Transportation Safety Certification Training Program ("PTSCTP") for those staff?

### **Specific Questions about Operators**

1. Is there complete training for new operators – who has it and who maintains it?
  - a. How is this training considered for update based on results of audits and investigations?
2. Is the current Rulebook the basis for the training of new operators?
3. Winterization Training – Does it exist in the initial training, or does it get trained early in the Fall?
4. Are trouble-shooting activities taught as part of the initial training?
5. Does training review the pass/fail rate for new operators - how that determination is made (when in the training protocol is the determination made to discontinue a new operator from the training and dismiss them)?
6. Who maintains and manages the operator’s training records? Where are they stored (paper, database, or both)? Who has access to them?
7. How long is the initial training (classroom, hands-on practice, supervised route training, initial revenue service (with or without a supervisor)?
8. How often do the new operators get effectiveness evaluations/SRCP audits? - what remedial training is often needed?
9. For the initial rides on the system – is each operator taught the various anomalies for the rail line and do they get to experience day and night operations as part of the training?
10. Where in the training do they teach signals and switches?
11. Where in the training are emergency procedures (especially if there are evacuations for life/safety in the tunnel) covered?
12. What is the RWP Training for new operators – especially for work zones?
13. Is there mandatory biennial training?

**Date:**

**Time:**

**Location:**

**DPU - SSO Team**

DPU

Vital Assurance

**Requested Attendees**

MBTA

**Massachusetts Department of Public Utilities (“Mass DPU”)  
Rail Transit State Safety Oversight (“SSO”) Program  
Massachusetts Bay Transportation Authority (“MBTA”)  
Triennial Audit Checklist Grouping 12**

**Update:** 09/07/2023

**Grouping 12. Safety Promotion – Communication**

- Policy Communication Throughout Transit Agency
- Safety Performance Criteria, Targets, and Measures
- Employee Safety Reporting System
- Hazards Identification and Resolution

**Related Documents to Review:**

- Review the guidance from Federal Transit Administration (“FTA”) in the Agency Safety Plan (“ASP”) review checklist Section I Safety Promotion, I-2, I-3, and I-4.
- Transit Safety Plan ASP 2022, Section 7.2 Safety Communication; PRF 5 Safety Management Policy Statement, Section 4.0 Organizational Structure and Responsibilities, Section 6.3 Data Analysis
- Hazard Management Program
- Security Awareness
- Operations Orders
- Safety Data Analysis
- Injury analysis and information

**Questions and Requests for Grouping 12. Safety Promotion – Communication**

1. How did MBTA intend to communicate the Safety Management Policy throughout the agency?  
How are you continuing to remind the employees of the Safety Management Policy?

Does the MBTA record/document the following safety communication policies and activities:

2. Documentation of how safety and safety performance information is communicated throughout the organization.
3. Documented criteria to trigger the communication of safety and safety performance information throughout the organization.
4. Documented policies and/or procedures to communicate information related to SMS activities to appropriate personnel throughout the agency.
5. Employees are made aware of safety management priorities and safety concerns at the organizational level and as they relate to their own duties and responsibilities.
6. Communication of safety concerns and hazards to appropriate groups and individuals as it relates to their responsibilities.
7. Communication of actions taken by the MBTA to address safety concerns and hazards reported by employees through the employee safety reporting program.
8. Communication of safety concerns, safety risks and safety performance to executive management.

9. Documented policies and/or procedures for communicating safety performance and SMS information to FTA and the DPU.
10. How to ensure communication, and the means, are effective.
11. Explain the communication of Operations Orders. Any other formal communications of safety data?
12. Who receives the Safety Data Analysis Report results?
13. How is the SMS Implementation going to be communicated to employees?
14. Explain how safety performance data and analysis results are communicated to executives, managers, and all staff.

**Date:**

**Time:**

**Location:** TBD

**DPU - SSO Team**

DPU

Vital Assurance

**Requested Attendees**

MBTA

## **Appendix E – Notification of Audit and Document Request**



THE COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC UTILITIES

MAURA T. HEALEY  
GOVERNOR  
KIMBERLEY DRISCOLL  
LIEUTENANT GOVERNOR  
REBECCA L. TEPPER  
SECRETARY OF ENERGY  
AND ENVIRONMENTAL AFFAIRS

ONE SOUTH STATION  
BOSTON, MA 02110  
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JAMES VAN NOSTRAND  
CHAIR  
CECILE M. FRASER  
COMMISSIONER  
STACI RUBIN  
COMMISSIONER

August 9, 2023

VIA ELECTRONIC MAIL

Mr. Ronald Ester  
Chief Safety Officer  
MBTA Safety Department  
185 Kneeland Street, 3<sup>rd</sup> Floor  
Boston, MA 02111

RE: Notification of DPU's 2023 Triennial Audit of MBTA

Dear Mr. Ester:

Pursuant to 49 CFR Part 674.31 and 220 CMR 151.10 (2), the Department of Public Utilities' ("DPU") Rail Transit Safety Division must conduct a complete audit, at least once every three years, of the Massachusetts Bay Transportation Authority's ("MBTA") compliance with its Public Transportation Agency Safety Plan ("PTASP"). Therefore, in accordance with federal and state regulations, the DPU is providing MBTA notice of the upcoming Triennial Audit beginning the week of October 2, 2023.

The DPU's audit activities will include interviews with various MBTA departments, as well as field observations. Additionally, enclosed is a pre-audit documentation request with the following instructions:

1. The initial phase of this documentation submission, including general plans, procedures, and other documents must be returned by September 1, 2023. The remaining records may be submitted by September 8, 2023.

FAX: (617) 345-9101  
[www.mass.gov/dpu](http://www.mass.gov/dpu)

2023 MBTA DPU Triennial Audit of MBTA Notification

Page 2

2. The DPU requests that MBTA return the documents listed in an electronic format via Drop Box link provided by the DPU. Permission to add additional participants from MBTA may be granted upon request.
3. Please complete the enclosed table providing each document name and version and indicate in the “Comment” field if a document revision is anticipated to be completed by the end of calendar year 2023. In addition, if you are unable to provide a document, please also indicate this in the “Comment” field (e.g., it is security sensitive information).

Please contact me should you have any questions or concerns.

Sincerely,

/s/

Robert Hanson, Director  
Rail Transit Safety Division

Enc. Pre-Audit Document Request

cc:

M. Catsos - MBTA  
D. Carvalho – DPU  
I. Limlengco – DPU  
K. Chandler – Vital Assurance  
B. Kummerer – Vital Assurance





**Massachusetts Department of Public Utilities (Mass DPU)**  
 Rail Transit State Safety Oversight (SSO) Program  
 Triennial Audit of the MB TA Safety Program  
 Pre-Audit Documentation Request

The Department of Public Utilities (“DPU”) of the Commonwealth of Massachusetts requests the following documents from the Massachusetts Bay Transportation Authority (“MB TA”) prior to its 2023 Triennial Audit of the MB TA. This document request represents documents that comprise the Minimum Standards for Safety (“MSS”) for a rail transit property, as well as other records that are pertinent to the audit process. It is possible that other documents will be requested, though every effort has been made to be as comprehensive as possible in this first document request.

The initial phase of this document submission - general plans, procedures, and other documents - must be submitted by September 1, 2023. The remaining records must be submitted by September 8, 2023.

Please submit all documents to the link below. Permission to additional participants from MB TA may be granted upon request.  
<https://www.dropbox.com/scl/fo/xe0xnhq4md0ef0lr0ivwfh?rlkey=w1nz8gsprm8ykbkkvhbjn99ssl&dl=0>

**Note: Please indicate in the “Comment” field if a document revision is anticipated to be completed by the end of calendar year 2023. In addition, if you are unable to provide a document, please also indicate this in the “Comment” field (e.g., it is security sensitive information).**

Please submit any questions or concerns with this document request to:

- Ivana Limlengco – [Ivana.Limlengco@mass.gov](mailto:Ivana.Limlengco@mass.gov)
- David Carvalho – [David.Carvalho@mass.gov](mailto:David.Carvalho@mass.gov)
- Brian Kummerer – [Kummerer@vitalassurance.com](mailto:Kummerer@vitalassurance.com)
- Kevin Chandler – [Chandler@vitalassurance.com](mailto:Chandler@vitalassurance.com)

Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
<b>Administrative Documents</b>			
1. MBTA SEPP			
2. MBTA Emergency Management Plan			
3. MBTA Continuity of Operations Plan (COOP)			
4. Overview of TSA Recent BASE Review (Most recent)			



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
5. Public Transportation Agency Safety Plan (Most Recent)			
6. MBTA Right of Way (ROW) Safety Rulebook (Most recent)			
7. MBTA Safety Event Investigation Manual (Most recent)			
8. MBTA Internal Safety Audit Program (Most recent)			
9. MBTA Safety Rules Compliance Program (SRCP) Manual			
10. MBTA Drug and Alcohol Policy			
11. MBTA Occupational Health & Safety Plan			
12. MBTA Employee Safety Reporting Program			
13. MBTA SMS Implementation Plan			
14. MBTA Configuration Management and Control Safety Program			
15. MBTA Safety Certification Program			
16. MBTA System Modification Safety Program			
17. MBTA Transit Asset Management			



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
18. MBTA Heavy Rail and Light Rail Operations Fleet Management Plan FY 2018 - FY 2022			
19. MBTA Safety Bulletins - see workbook tab			
20. MBTA Procurement Manual			
<b>Training and Awareness Materials and Records</b>			
21. MBTA Onboarding material – LMS required training, etc. by employee group with pass/fail criteria for each of the following <ul style="list-style-type: none"> <li>• Train operators</li> <li>• Track Inspectors</li> <li>• Signal Maintainers</li> <li>• Vehicle Mechanics</li> <li>• Substation Maintainers and Flaggers</li> <li>• Others</li> </ul>			
22. Employee Medical/Physical Exam policies including Fitness for Duty			
23. Employee Hours of Service Policy			
24. Power Energization/De-energization policy/procedure with remote and local operations and responsibilities			



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
25. Railcar stinger/bugging and operations procedures			
26. Rail Infrastructure Inspection standards, frequencies, records including, but not limited to: <ul style="list-style-type: none"> <li>• Railcars</li> <li>• Track</li> <li>• Substations</li> <li>• Catenary</li> <li>• Third rail</li> <li>• Stations and station infrastructure</li> <li>• Control Center</li> </ul>			
27. New Rail Operator and Rail Refresher course curriculum and materials, including how often refresher training is completed (Training records for Operators and Supervisors will be reviewed onsite)			
28. Recent Drills and Exercises – After Action Reports (AAR) and descriptions of any completed exercises and emergency drills/simulations, including currently planned activities for the last three years. Also, please describe any Corrective Actions that resulted from these exercises.			



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
29. Hazard Identification and Risk Assessment training curriculum			
30. Transit Security Awareness and Familiarization Training program for all levels of employees.			
31. Required Awareness Training for Boston Area First Responders			
<b>Other Documents Referenced in the Agency Safety Plan (Version December 2022)</b>		<b>Version December 2022 Page Number</b>	
32. SMS Steering Committee (SMRC) charter, agendas, notes from meetings		Phase 1 of SMS Implementation	
33. SMS Implementation Team (SMWG) charter, agendas, notes from meetings		Phase 1 of SMS Implementation	
34. Criteria for elevation of Safety Risks to Executive Management		Phase 2 of SMS Implementation	
35. Evidence of development of parameters to improve local safety committee meetings		Phase 2 of SMS Implementation	
36. Employee Safety Committee charter, agenda, notes		Page 24	
37. Evidence of Measure of Safety Culture		Page 29	



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
38. MBTA Strategic Plan		Page 31	
39. Evidence of Transit Evacuation Drills and Lessons Learned		Page 31	
40. Evidence of Corrective Actions created out of Drills and Exercises		Page 31	
41. MBTA State of Good Repair Policy		Page 31	
42. MassDOT/MBTA Railroad System Safety Program Plan		Page 33	
43. Safety Data Analysis Report (SDAR)		Page 33	
44. Board Monthly Safety Report		Page 33	
45. Safety Certification of Capital Infrastructure Projects		Page 33	
46. Safety Certification of Systems and Vehicle Procurements and Overhauls		Page 33	
47. Current tracking on compliance with the Calendar Year 2023 Safety Performance Measures		Page 36	
48. Organizational Chart for MBTA		Page 41	
49. Local Safety Committee Meeting Agendas Minutes/Notes		Page 45/Page 47	



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
50. Data Analysis Groups/Accident Reduction Committee Meeting Notes/Agendas		Page 46	
51. Transition Action Plan developed by MBTA Safety for New Agency Leadership		Page 50	
52. MBTA Infrastructure, Facilities, and Equipment Safety Inspection forms		Page 63	
53. Evidence of Voluntary Safety Reporting System Resolution		Page 67	
54. Internal Safety Audit Schedule and Reports		Page 72	
55. Peer Agency SMS Reviews		Page 73	
56. Status of SMS Training for all MBTA employees		Page 74	
57. Listing of personnel job position directly responsible for Safety Oversight and their progress toward compliance with the PTSC TP		Page 76	
58. Evidence of Agency Leadership having received the SMS Leadership Responsibility Training		Page 80	
<b>Records and Documentation</b>			



Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
59. Copies of all rail related Safety Bulletins, Transportation Notices, Slow Orders, etc. from last three years.			
60. Reports or Presentations of Safety Data Analysis and supporting hazard identification efforts			
61. Track and Switch Inspection and Maintenance Standards and a sample of completed inspection forms from across the previous three years			
62. Signal Inspection procedures and a sample of completed inspection forms from across the previous three years			
63. Radio System Operating Inspection and Testing procedures a sample of completed inspection forms from across the previous three years			
64. Sample of Rail Passenger Station Inspection forms and a sample of completed inspection forms from across the previous three years			
65. Substation and OCS/Third Rail Inspection and Maintenance Standards			





Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
and a sample of completed inspection forms from across the previous three years			
66. Minutes of safety-related committee meetings for the last year (Rail Safety Committee, Executive Safety Committee, Configuration Management Committee, etc.)			
67. Corrective Actions based on accidents/incidents/events, hazard management, and internal and external audits for the last three-year period (2020-2022 present day)			
68. Investigation Reports for all reportable events to PTSB over the last three years (2020-2022)			
69. Current Hazard Log, Occurrence/Incident Logs, Unusual Occurrence Log, or Rail Call Log for the last year (all that pertain)			
70. Standard Operating Procedure for Pre-Trip Inspections of Rail Cars and reporting defects			
71. Sample of rail vehicle completed Pre-Trip Inspection Cards and Defect Cards sampled from the previous three-year cycle			



**MA DPU**  
**Rail Transit Safety**

**Massachusetts Department of Public Utilities (Mass DPU)**  
Rail Transit State Safety Oversight (SSO) Program  
Triennial Audit of the MBTA Safety Program  
Pre-Audit Documentation Request

Document Requested	Document Current Name and Version	Responsible Department/Location	Comment
(approximately 36 samples/1 per month)			
72. Records of Rules Compliance activities planned and completed (efficiency testing)			
73. MBTA Procurement Policy			
74. Signal Violations over the last three-year period (2020-2022)			
75. Records for FTA Safety Advisories and Bulletins that were in scope for MBTA			
76. List of Capital projects and Current Status			

## **Appendix F – MBTA Comments on Final Draft 2023 Triennial Safety Audit Report**



Maura Healey, Governor  
 Kimberley Driscoll, Lieutenant Governor  
 Monica Tibbits-Nutt, Secretary & CEO  
 Phillip Eng, General Manager & CEO



April 1, 2024

Mr. Robert Hanson  
 Director, Rail Transit Safety  
 Massachusetts Department of Public Utilities (DPU)  
 One South Station  
 Boston, MA 02110

**Re: MBTA Comments on DPU Draft 2023 Triennial Safety Audit of the MBTA Report**

Mr. Hanson,

The Massachusetts Bay Transportation Authority (MBTA) Safety Division has received and reviewed the DPU's Draft 2023 Triennial Safety Audit of the MBTA Report, summarizing audit findings and recommendations from the activities required under 49 C.F.R. Part 674.31 and 220 CMR 151.10(2).

The Division thanks you for the opportunity to review the draft report, and offers the following comments, questions, and clarifications on the document.

Page	Section	Text in Draft	Comment
5	Audit Schedules & Activities		RTSD utilized 5 times without being defined
6	Special Directive 22-4	The MBTA replaced tracking and followed internal safety processes and procedures.	Under the section regarding Tufts Curve, it references "The MBTA replaced tracking..." Should 'tracking' be 'track'?
6-7	Notable Areas of Improvement	Additionally, the MBTA has closed the following SD 22-4 findings	MBTA has also closed Finding 7 under 22-4 and Finding 4 under 22-6
11	Triennial Audit Design	The Triennial Audit is not intended to be a comprehensive review in each of the Groupings; however, some aspects of each Grouping are reviewed to assure compliance with the Safety Program, ASP, and SMS implementation.	What is the difference between the Safety Program and the ASP?

18	Grouping 1 Recommendations	The MBTA should provide DPU with a draft of ASP updates, for DPU to complete an informal review of the document and provide conditional approval before the MBTA presents the document to its Board of Directors for approval.	The MBTA has submitted drafts to the DPU for comment prior to leadership signature
18	Grouping 1 Recommendations	The MBTA should perform a formal SMS Implementation Audit to establish where it has made progress with the ASP.	This is covered in FTA 23-10 CAP 1
18	Grouping 1 Recommendations	The Safety Certification Plan and Configuration Management Plan have not been updated since 2015. These plans are being updated pursuant to SD 22-9 and should continue to be updated to also reflect the relevant Recommendations and Findings in Grouping 9 of this audit.	This is covered in FTA 22-09 CAP 3
18	Grouping 1 Findings	The DPU reviewed several documents considered Minimum Standards for Safety (“MSS”) that have been updated but not shared previously with the DPU.	Please note what MSS documents were updated but not shared with DPU
18	Grouping 1 Findings	The MBTA completed drills and exercises without formal sharing of After-Action reports and the Corrective Actions developed in response to those drills and exercises.	There have been no Corrective Actions developed following drills and exercises. All Corrective Actions developed are submitted formally to DPU.

19	Grouping 2 Opportunities	The Safety Department has several vacant positions and is leaning heavily on a few key individuals to do most of the work. MBTA should fill vacancies and develop a clear onboarding plan that identifies the roles and responsibilities associated with new positions.	This is in process since September 2023 and is tied to FTA CAP 22-09 and 23-10.
19	Grouping 2 Recommendations	The Safety Department should develop a strategic plan and forecast the top priorities for safety oversight, as this will help to ensure alignment of resource needs	Prioritization and resource needs are in the process of being developed as part of the Workforce Assessment required by FTA CAP 22-9-1.
20	Grouping 3 Opportunities	To fully implement the SRM process with the staff, more in-depth and in-person training (not just the LMS) should be considered	Is the staff noted in bullet 1 referring to MBTA Safety Division Staff or Agency Staff? This is covered in FTA CAP under 23-10
20	Grouping 3 Opportunities	Although improving, the MBTA should continue to develop the tools and capabilities to fully implement SMS.	This overlaps with FTA CAPs under 23-10
20	Grouping 3 Opportunities	Develop a policy for triage and assessment of hazards reported through the ESRS.	This overlaps significantly with FTA CAPs under 23-10
20	Grouping 3 Recommendations	The MBTA should formally evaluate the current risk level and ensure alignment with executive leadership on risk acceptance.	Risk acceptance criteria has been reviewed and is part of FTA CAP 23-10-2
20	Grouping 3 Recommendations	Develop guidance and employee outreach material for the MBTA staff and management on what is a	This overlaps with FTA CAPs under 23-10 & 22-11

		critical reported hazard via ESRS and what is not	
20	Grouping 3 Recommendations	The MBTA should ensure its use of the Origami database assists the DPU's risk-based inspection program.	This overlaps with FTA CAPs under 23-10
21	Grouping 4 Opportunities	The MBTA should track Corrective Actions and ensure uniform status updates across MBTA responsible departments.	This overlaps with FTA CAP 23-10-04
21	Grouping 4 Opportunities	The MBTA should assist and engage in CAP development from the responsible MBTA departments to determine if proposed CAPs adequately address the root causes of the precipitating event.	This overlaps with FTA CAP 23-10-04
21	Grouping 4 Recommendations	The MBTA should formally identify its peer organizations and compare its performance measures and targets with the peer group.	As a part of multiple FTA CAPs, MBTA has performed industry benchmarking efforts to identify best practices
21	Grouping 4 Recommendations	The MBTA Safety Office should study whether the Safety Rules Compliance Program ("SRCP") is consistent with APTA Standard RT-OP-S-011-10 and other peer organizations. This evaluation should be used to determine whether the program should be further developed to be more effective.	This overlaps with FTA CAP 23-12-01R
22	Grouping 5 Opportunities	The MBTA should track investigation reports and investigational process through	FTA CAP 23-10-04 scope is focused on the MBTA's investigation process

		closure and subsequent mitigation.	
22	Grouping 5 Opportunities	The MBTA should decrease the amount of time it takes to produce final reports.	FTA CAP 23-10-04 scope is focused on the MBTA's investigation process
22	Grouping 5 Opportunities	The MBTA should assure collaboration by all responsible MBTA departments with the results of the investigation reports and corrective actions.	FTA CAP 23-10-04 scope is focused on the MBTA's investigation process
22	Grouping 5 Recommendations	The MBTA should consider a uniform tracking mechanism for safety rules violations and other key investigative milestones	Is this referring to SRCPs, or rule violations requiring incident investigation?
22	Grouping 5 Recommendations	The MBTA should develop an internal policy/procedure and training for MBTA departments on their responsibilities when responding to a safety event.	This is defined in the Safety Event Investigation Manual and an LMS training module was developed for Safety Event Response Team personnel.
22	Grouping 5 Recommendation	The MBTA should determine the appropriate staffing level required to ensure long-term compliance with regulatory investigation reporting requirements.	This overlaps with the FTA Workforce Assessment CAP 22-09-01 and CAP 23-10-04 scope is focused on the MBTA's investigation process
22	Grouping 5 Recommendation	The MBTA should ensure the Accident Investigation report delivery to DPU is up to date and maintain on-time delivery. Written documentation should be provided for reports that MBTA proposes to submit late.	FTA CAP 23-10-04 scope is focused on the MBTA's investigation process
23	Grouping 5 Findings	On several occasions, MBTA operators have returned to operate revenue vehicles prior	Are there examples to validate this statement?



		to both receipt of Post-Accident Testing (“PAT”) results and the operator being cleared based on those results.	
23	Grouping 5 Findings	The MBTA must ensure that operators who are sent for PAT are not permitted to operate an MBTA revenue vehicle until cleared with results of the PAT by the Human Resources department.	Human Resources does not clear employees to return to work. This is done by the Medical Clinic.
24	Grouping 6 Positive Observations	The results of this should regularly be shared within MBTA and with DPU.	This information is shared via the invites to the monthly SRCP meetings which DPU is invited to
24	Grouping 6 Opportunities	MBTA should do more to promote throughout the entire organization the importance of compliance in a rules-based operating environment.	This is covered by FTA CAP 23-12-01R
24	Grouping 6 Opportunities	The Rail Operating Rulebook has too many pages for an operator to carry while operating a train, making it increasingly more difficult for the operator to consult the rulebook in making the correct decisions. MBTA should evaluate other RTA processes for ensuring accessible rules documentation.	This is covered by FTA CAP 23-12-01R
24	Grouping 6 Recommendations	The MBTA should retrain all frontline and management level staff on the importance of rule adherence and efficiency testing (SRCP).	This is covered by FTA CAPs under 23-12

		The MBTA should consider if the method of accounting for SRCP activities is diluting their overall compliance rates.	
24	Grouping 6 Recommendations	The MBTA should consider if the method of accounting for SRCP activities is diluting their overall compliance rates.	This is covered by FTA CAPs under 23-12
24	Grouping 6 Recommendations	The MBTA should assess rules violations based upon years of service. If there is a correlation that employees with shorter durations of years of service have a higher violation rate, a training gap analysis should be conducted.	This is covered by FTA CAPs under 23-12
25	Grouping 6 Findings	<p>On several occasions, MBTA has updated documents designated as MSS without notifying DPU and providing opportunity to review these changed/updated documents.</p> <p>o MBTA shall develop a process for all rulebook revisions to be presented to DPU for comment before finalizing it as a MSS.</p>	This is covered by FTA CAPs under 23-12
25	Grouping 6 Findings	<p>On several occasions, the DPU has expressed significant concerns with MBTA's Rules Compliance program.</p> <p>The MBTA must evaluate the Rules Compliance program and determine if it both meets the expectations of its executive management for rules compliance and is consistent</p>	This is covered by FTA CAPs under 23-12.

		with successful peer organizations.	
26	Grouping 7 Opportunities	The current track condition is not completely known by MBTA. MBTA should continue to implement SD 22-4 programs and sustain them over time, so that the condition of track is more transparent, especially for those responsible for inspection, maintenance, and operations.	This is covered by FTA CAPs under 22-04.
26	Grouping 7 Recommendations	The MBTA should determine the scope of the Everett Shop and determine if it is sufficiently staffed or requires additional equipment/machinery to meet the needs of the organization.	This overlaps with the FTA Workforce Assessment CAP 22-09-01
26	Grouping 7 Recommendations	The MBTA should identify gaps within the MOW staffing and develop a plan to address the shortfalls.	This overlaps with the FTA Workforce Assessment CAP 22-09-01
26	Grouping 7 Recommendations	The MBTA should continue to implement the MaxTrax phone system.	This is covered by FTA CAPs under 22-04 and CAP 22-12-05
26	Grouping 7 Recommendations	The MBTA should assess the effectiveness of the RFID tag system used by the Blue Line at Orient Heights Carhouse and determine opportunities for further deployment.	This is covered by FTA CAPs 22-04-06 and 22-12-05
26	Grouping 7 Findings	Based on observations over the last few years, there have been maintenance issues out on the rail system that were not being tracked in the maintenance	Collecting, scoring and planning for track maintenance work is being addressed by FTA CAP 22-4-8, Special Maintenance Repair Plan.

		management system or scheduled for corrective maintenance	Other efforts for assets' inspection, maintenance and planning is covered in other FTA CAPs under SD 22-4.
28	Grouping 9 Recommendations	The MBTA should regularly account for the status of each new capital project in the system and determine if the Safety Certification Tier evaluation originally assigned is still appropriate.	This is covered by FTA CAP 22-09-03.
28	Grouping 9 Recommendations	As part of its implementation of FTA's SD-9, the MBTA should evaluate whether Safety staff plus the current level of contractor support is a sufficient resource level to satisfactorily address Management of Change	This is already part of the workforce assessment CAP 22-09-01 in conjunction with CAP 22-09-04
28	Grouping 9 Findings	<p>The MBTA should reconsider the explanations (in the plans/programs referenced below) of Safety Certification Tiers and requirements for Risk Assessment and Hazard Analysis.</p> <p>o MBTA must improve how Safety Certification Tier selection and appropriate communications of changes on capital projects are addressed in the Configuration Management Plan and Safety Certification Program, which MBTA is currently updating. These updated documents must be sent to DPU for comment and concurrence before finalizing. This Finding is intended to</p>	This is covered by FTA CAP 22-09-03.

		compliment, not alter, FTA's SD 22-9.	
28	Grouping 9 Findings	<p>The GLX project prematurely commenced revenue service while several design specifications were not properly constructed (e.g., narrow gauge), which should have been revealed as part of the Safety Certification Program.</p> <p>o The MBTA must formalize and ensure transparency and effective communication of changes and safety hazards across its divisions/groups prior to introducing new capital projects into revenue service.</p>	This is covered by FTA CAP 22-09-03.
28	Grouping 9 Findings	The MBTA must formalize and consistently use the Change Management Committee structure in the MBTA's Safety Certification Program (the Safety and Security Executive Review Committee, the Safety Certification Working Group, and the project-specific committees) for transparency and effective communication of changes across divisions/groups, including advance notification to DPU of the meeting schedules.	This is covered by FTA CAP 22-09-03.
30	Grouping 10 Recommendations	The MBTA should consider shifting to a final report for each internal audit topic when the audit is complete, rather than compiling at the end of the yearly cycle. The process	MBTA does complete a report for each internal audit, but per 220 CMR 151.05 (3), MBTA is required to submit an annual report to DPU by February 15th.

		change may help the MBTA be more transparent throughout the year in its audit activities and Corrective Actions that result from the audits.	
30	Grouping 10 Findings	The MBTA must update the Internal Safety Review/Audit schedule at a predetermined point each calendar year and communicate that revised schedule with the DPU.	The three year look ahead of the Internal Safety Audit is found in the annual report.
31	Grouping 10 Findings	In those cases, to achieve the most neutral process and meaningful results, it would be helpful to have a separate MBTA office or contractor (e.g., Quality, Compliance, and Oversight (“QCO”)) participate and provide those audits/reviews of MBTA Safety functions and activities.	MBTA Safety was not audited this year. In years where MBTA Safety is audited, a neutral third party performs the audit to avoid a conflict of interest. In 2022, MBTA Safety was audited. This audit was performed by TRA.
31	Grouping 11 Opportunities	The Training department relies on the LMS system to send notifications within MBTA that changes to operational processes need to be made, rather than the Training department preparing training on the changes. The MBTA should provide clearer communication of configuration management changes and evaluate developing training to all departments, rather than relying on the LMS software to make notifications.	This overlaps with the FTA CAP 22-12-04
31	Grouping 11 Recommendations	The MBTA Configuration Management Committee should	This overlaps with the FTA CAP 22-12-04

		include a representative from Training department to ensure the changes are implemented	
31	Grouping 11 Recommendations	The MBTA should audit the LMS/Learning Hub curriculum to see how effective it is for frontline employees.	This overlaps with the FTA CAP 22-12-04
31	Grouping 11 Recommendations	The MBTA should develop a curriculum for Power Dispatchers in addition to one-on-one training.	This overlaps with the FTA CAP 22-12-04
31	Grouping 11 Recommendations	The MBTA should develop checklists of minimum required training for all employee classifications and job performance measures.	This overlaps with the FTA CAP 22-12-04
31	Grouping 11 Recommendations	MBTA Training department should track the topic of each Safety Flash that is issued so it can better target refresher training in those areas.	This overlaps with the FTA CAPs 22-12-04 and 23-10
31	Grouping 11 Recommendations	In accordance with the FTA requirements from the SMI, the MBTA should complete reevaluation and redesign of the ROW/RWP Training and reissue it to all required staff.	This overlaps with the FTA CAP 22-12-04
31	Grouping 11 Recommendations	The Power Training department should determine whether the training curriculum they have is sufficient based on newer and older component equipment manufacturer specifications.	This overlaps with the FTA CAP 22-12-04

32	Grouping 11 Findings	The MBTA must develop a training curriculum for each division that accurately reflects its role and responsibility for completing the safety event investigation checklists that are completed during safety event investigations	This is included in the Safety Event Investigation Training Modules.
32	Grouping 11 Findings	MBTA shall develop a technical training plan for the investigations team that includes key competencies, training schedules, and opportunities for continued education	The Safety Event Investigation Training Modules provide the investigation training for those completing investigations. Those working in Transit Rail Safety are hired as SMEs in the various subjects.
34	Grouping 12 Recommendations	As new staff have been used to analyze the aspects of training pertinent to job classification, the MBTA should perform an assessment of the status of that activity.	This overlaps with the FTA CAP 22-12-04
34	Grouping 12 Recommendations	The MBTA should continue to educate all staff, including its frontline staff, on its adoption of the SMS and how and why the organization has adopted its principles.	This overlaps with the FTA CAPs in 22-10
34	Grouping 12 Findings	The MBTA must communicate all business documents created in the SMI and SMS with the DPU. (Minimum Standards for Safety review)	As part of the SMI, all documents submitted to the FTA Fileshare are also submitted to the DPU Fileshare.
43	Overall System Description	The Rail Transit System (subway system) includes:  5 light rail lines	The MBTA Rail Transit System has 2 light rail lines – the green line with multiple branches, and the Mattapan line.



43	MBTA Rail Transit System	The Green Line is the only line that has direct connections to the rest of the lines.	The Orange line also directly connects with the rest of the lines as well. The Red and Blue lines are the only lines that do not connect with each other.
45	Light Rail Lines	<b>Green Line</b> – The Green Line consists of four active branches:  D Branch runs from the C branch southwest of Kenmore station to Riverside station  E Branch runs northwest from Heath Street station to Copley station	The Union Square Branch is considered the opposite end of the D branch, and the Medford/Tufts Branch is considered the opposite end of the E branch.
45	Light Rail Lines	The GLX extension from Lechmere opened in December 2022 and added another 7 miles of track	GLX added 4.3 miles of track.
45	Light Rail Lines	These vehicles are maintained at vehicle maintenance facilities, Riverside and Reservoir Yard	Vehicles are also maintained at Innerbelt Carhouse
46	MBTA Transit Police Department	The department patrols and protects the 5 subway lines to include the Silver Line, 13 commuter rail lines, 4 passenger ferry routes, 181 bus routes and The Ride paratransit system in Massachusetts communities.	There are 6 passenger ferry routes – Charlestown, Hingham, Hull, East Boston, Winthrop, Lynn.
46	Power Distribution	For the rapid transit and trackless trolley services, the MBTA distributes electricity to power various systems	MBTA no longer has trackless trolleys.
47	Major Administrative Facilities		Missing:

			185 Kneeland St, Boston Training Facilities: Missing the UTC at Charlestown
48	Map of MBTA System		Map is outdated and does not include GLX

We thank you for your consideration of these comments and clarifications, and for the opportunity to continue our collaboration toward a safer MBTA. Should you wish to discuss, please do not hesitate to contact me.

Sincerely,

DocuSigned by:  
  
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Timothy P. Lesniak, Chief Safety Officer