



**Massachusetts Bay
Transportation Authority**

Safety Updates

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MBTA Board of Directors Meeting

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Discussion Topics

- Safety Risk Management (SRM) Update
- Safety Performance Indicators and Trend Analysis



Safety Risk Management (SRM) at the MBTA

SRM:

- One of the four main components of SMS
- A process for identifying hazards and analyzing, assessing, and mitigating safety risk

Risk:

- The composite of predicted severity (Catastrophic to Low) and likelihood (Frequent to Eliminated, or Not Effective to Effective when assessing past events and related mitigations) of the potential effect of a hazard

Safety Risk Assessment (SRA):

- A sub-element of the overall SRM process
- The actual assessment of risk where MBTA's risk assessment matrix is applied to hazards and their consequences to quantify risk



Safety Risk Assessment Process and Procedure

Safety Risk Assessments:

- Conducted using collaborative discussions to assess risks and document risk mitigations facilitated by Safety with input from other business units
- Initiated in response to major changes (equipment, procedures, operations, organization), hazard reports, and emerging issues
- Memorialized in SRM Worksheets which are formally reviewed, signed, and retained to document risk acceptance

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



SRM Process Enhancements Under FTA Special Directive 23-10 CAP Requirements



Structured SRM approach to accommodate both emerging issues and planned future topics for in-depth assessment



Clarified roles, responsibilities, action steps, and criteria for risk acceptance



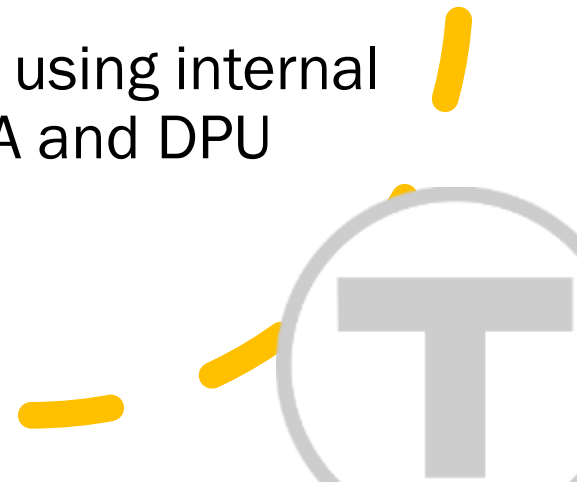
Clarified protocols for evaluating and escalating risk information to senior leadership



Application of reports, dashboards, and technology tools to better facilitate SRM process

Growing MBTA's SRM Program in 2024

- Building out dedicated SRM team under newly-created Deputy Director of Safety Risk Management role
- Scheduling consistent SRM workshops established with stakeholder departments on topics selected in coordination with Safety
- Tracking of SRM-identified risks and mitigations through use of hazard module of Safety's new database software
- Continuing to build out SRM process using internal feedback and external input from FTA and DPU



SRM Workshop Topics: Recent and Future

Recent workshop topics:

- Surge Planning, Execution, and Return to Service
- Track and Rail Conditions
- Power Dispatch Protocols
- Fatigue and Attention to Duty
- Transit Worker Assaults
- Fare Transformation
- Workforce Assessments

Future workshop topics:

- Insulator Smoke and Fire Events
- Signal Rules Compliance
- Escalator and Station Slip/Trip/Fall Safety
- Emergency Response
- Communications
- Operation of Maintenance Equipment



Safety Performance Indicators and Trend Analysis

Bus

- Improvement in Bus NTD reportable injuries decreasing total number of injuries from **19** to **18** and rate per million revenue miles from **11.09** to **10.54**.
- Met the Bus customer injuries performance target for **2nd** consecutive month (**1.72** injuries per million passenger trips vs. performance target of **2.54**.)
- **0** reportable fire/smoke incidents for the Bus fleet.
- Experienced **3rd** worst month in collisions with an **89.57** rate of collisions per million revenue miles vs. performance target of **60.08**.



Safety Performance Indicators and Trend Analysis

Heavy Rail



- December 2023 marks the **4th** consecutive month of meeting the Heavy Rail monthly performance targets for NTD reportable safety events, both total and rate per million revenue miles.
- There were **0** Heavy Rail revenue vehicle derailments.
- Heavy Rail met **every** collision performance target.
- Heavy Rail met the fire/smoke performance targets for all three heavy rail lines (**0 vs target 4.83 / 5 vs. target 7.58 / 1 vs target 1**).



Safety Performance Indicators and Trend Analysis

Light Rail

- Light Rail NTD reportable injuries improved over last month in both total and rate per million revenue miles.
- Light Rail averaged **8,217** revenue miles per major mechanical failure, performing better than the target of **7,650** miles.
- There were **0** Light Rail revenue vehicle derailments.
- There was **1** reportable smoke/fire incident on Light Rail, but performance remained well under the target of **5.20**.



Safety Performance Indicators and Trend Analysis

Commuter Rail / Ferry

- Commuter Rail's December 2023 accident frequency ratio of **1.7** performed better than the year-to-date ratio of **1.9**.
- Commuter Rail had **4** Reportable and **0** Non-Reportable employee injuries and **1** passenger reported injury.
- There were **0** Commuter Rail revenue vehicle derailments.
- There were **0** reportable smoke/fire incidents on Commuter Rail and Ferry.
- There were **0** Ferry safety incidents.

Questions?

