



Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Jamey Tesler, Acting MassDOT Secretary & CEO
Steve Poftak, General Manager



MEMORANDUM

TO: Fiscal and Management Control Board (FMCB)

FROM: Ronald Ester
Chief Safety Officer

DATE: April 26, 2021

SUBJECT: Safety Performance Measures and Targets

Overview

Safety is a core value at the MBTA and in MBTA Safety, one of our major long-term goals is implementing Safety Management Systems (SMS) across the authority. SMS is a data-driven approach to safety and a key component of SMS is setting safety performance targets as well as tracking and communicating them efficiently and effectively to make agency-wide determinations and decisions. MBTA Safety continues to track Safety Performance and is monitoring performance through the first quarter of Calendar Year 2021 against previously set performance targets.

Regulatory Mandated Key Performance Indicators (KPIs)

In the 49 CFR 673, FTA's Public Transportation Agency Safety Plan Rule, there are requirements to set safety performance targets for Heavy Rail (Red, Orange, and Blue Lines), Light Rail (Green Line and Mattapan Trolley), Bus (both directly operated and contracted), and Paratransit (The RIDE). The 4 (four) specific safety performance areas that are required are as follows:

- **Fatalities**– All deaths on our property within 30 days excluding death due to illness and other natural causes per million vehicle revenue mile. Per FTA guidance, this metric also excludes deaths related to suicide or trespassing.
- **Injuries**– Any harm on our property resulting in immediate medical transport from scene per million vehicle revenue mile. This metric excludes injuries related to assaults or other security related injuries.
- **System Reliability** – mean distance between major mechanical failures. The National Public Transportation Safety Plan defines a major mechanical failure as system failures prevent a vehicle from completing or starting up a scheduled revenue trip because actual movement is limited or because of safety concerns.
- **Safety Events** –incidents (including accidents and derailments) meeting NTD major reporting thresholds for transit rail, bus, and paratransit. Events include those meeting the reporting thresholds for collisions, derailments, fire, hazardous material spill, act of nature (Act of God), evacuation, or Other Safety Occurrence Not Otherwise Classified occurring on a transit right-of-way, in a transit revenue facility, in a transit maintenance facility, or involving a transit revenue vehicle and meeting a NTD Major Event threshold.

MBTA Safety tracks and reports on MBTA's performance against these targets regularly in different monthly reports and meetings. The slide deck will show MBTA's performance against these targets for the first Quarter of Calendar Year 2021.

It should be noted that the regulatory mandated KPI's are normalized by a rate per million vehicle revenue mile. This normalization allows the FTA and other regulators to normalize the data and scale performance to easily compare and contrast the performance of transit agencies of varying sizes and complexities throughout the country. In addition, MBTA created additional KPI's that allow us to monitor performance on particular areas of concern. This allows for quick tracking and improved analysis of data to support senior leadership decision making and initiative implementation.

Additional Internal KPIs

MBTA Safety collaborated with multiple internal stakeholders to create metrics for both transit rail and bus on safety performance KPIs to allow for in-depth analysis of more specific event that are of concern to the agency. These metrics were normalized using other data points (e.g. per passenger trip) that are more helpful to rating safety performance. The safety performance measures are as follows:

- **Customer Injuries** – All customer injuries requiring medical transport from the scene per million passenger trips. Many customer injuries occur at stations before a single revenue mile is traveled by the customer, so this rate allows for a better understanding of our performance. It should be noted that due to the Covid-19 pandemic and resulting ridership reductions, these numbers have been skewed.
- **Derailments (Rail only)** – A derailment is when one or more wheels of a rail transit vehicle unintentionally leaves the rails. Derailments have the potential to cause harm to both employees and customers as well as damage to critical infrastructure. We decided to track our main line and yard derailments separately due to the different risks and consequences associated with them. While both are considered serious, the approach to mitigating the two types of derailments can be different. These incidents are not normalized into a rate but are instead presented as total occurrences.
 - **Main Line Derailments** – These cause a larger hazard due to the likelihood that customers are onboard at the time of the derailment and damage to main line rail as well as the potential for serious service impacts.
 - **Yard Derailments** – These cause a larger impact to internal activities and pose a larger risk to employees. There may be larger impacts maintenance activities that can cause indirect impacts to service.
- **Collisions** – An impact between a transit vehicle and another vehicle, object, or person. These are normalized using million revenue miles.
- **Reportable Fire/Smoke Incidents** – A reportable fire/smoke incident is defined as a smoke/fire incident that results in extinguishment, serious injury, fatality, or evacuation of a vehicle or facility. These incidents are not normalized into a rate but are instead presented as total occurrences.

MBTA Safety also tracks Safety Performance for both Commuter Rail and Ferry. These performance measures fall outside the requirements of the Transit Safety Plan, so instead of the performance targets required under the FTA, year-over-year performance comparisons have been developed. All Commuter Rail, metrics are in conformance with FRA Reporting Requirements.