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**Date:** February 8, 2021  
**To:** Fiscal and Management Control Board  
**From:** Ronald Ester, Chief Safety Officer  
**Re:** Safety Performance Measures and Targets

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## 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) here at the MBTA. SMS is a data-driven approach to safety and 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.

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## 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 as established in the National Public Transportation Safety Plan. 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.

In February 2020, MBTA Safety presented proposed targets to the FMCB for Calendar Year 2021 so they could be included in the 2020 Transit Safety Plan. These targets were approved on February 24, 2020. Since their approval, MBTA Safety has tracked these targets for Calendar Year 2020 and reported 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 Calendar Year 2020.

It should be noted that the regulatory mandated KPI's are normalized by a rate of 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 transit agency performance throughout the country that are a different sizes and complexities.

But, this normalization leads to KPI rates that are harder for MBTA to truly base our performance on. Therefore, MBTA made the decision to create additional KPI's that would give us a clearer picture on our performance. This allows for quick tracking and analysis of the data which can allow for senior leadership to make policy decisions or create initiatives to improve performance.

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## **ADDITIONAL INTERNAL KEY PERFORMANCE INDICATORS (KPIs)**

MBTA Safety collaborated with multiple internal stakeholders to create metrics 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 four specific safety performance areas that are required 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 our lower ridership for the year, these numbers have been skewed.
- **Derailments** – 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.
  - **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** – Are serious incidents that have the potential to cause harm to customers, employees, fleet assets, and critical infrastructure. 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 a serious injury, fatality, evacuation of a vehicle, or extinguishment. These incidents are not normalized into a rate.