



**TECHNICAL MEMORANDUM**

**DATE:** February 15, 2024  
**TO:** Boston Region Metropolitan Planning Organization  
**FROM:** Sam Taylor, MPO Staff  
**RE:** Transit Safety Performance Targets and Requirements

Metropolitan planning organizations (MPO) are federally required to set transit safety performance measure targets for their regions. MPOs set targets in coordination with transit and state agencies to manage safety risks on transit systems. This memorandum summarizes the most recent set of transit safety targets set by the Massachusetts Bay Transportation Authority (MBTA), the Cape Ann Transportation Authority (CATA), and the MetroWest Regional Transit Authority (MWRTA). Boston Region MPO staff proposes that the MPO board adopt these targets as presented for the Boston region, and staff requests that the board do so at its February 15, 2024, meeting.

**1 TRANSIT SAFETY PERFORMANCE OVERVIEW**

**1.1 Safety Performance Measures and Targets**

The National Public Transportation Safety Plan identifies safety performance measurement as a key component of safety management processes. It defines measures in four areas—fatalities, serious injuries, safety events, and system reliability.

Table 1 describes the performance measures for which targets and performance are reported in this memo. For all measures except for the system reliability measure, the goal is to minimize the value.

**Table 1  
Federally Required Transit Safety Performance Measures**

<b>Measure Category</b>	<b>Measure</b>	<b>Desired Direction</b>
Fatalities	Total number of reportable fatalities by mode	Decrease
Fatalities	Fatality rate per total VRM by mode	Decrease

**Civil Rights, nondiscrimination, and accessibility information is on the last page.**

Injuries	Total number of reportable injuries by mode	Decrease
Injuries	Injury rate per total VRM by mode	Decrease
Safety Events	Total number of reportable safety events by mode	Decrease
Safety Events	Rate of safety events per total VRM by mode	Decrease
System Reliability	Mean distance between major mechanical failures by mode	Increase

VRM = vehicle-revenue miles.

## 2 BOSTON REGION TRANSIT AGENCIES’ SAFETY TARGETS

### 2.1 Overview

To meet federal transit safety requirements, the Boston Region MPO coordinates with the MBTA, CATA and MWRTA. As previously mentioned, the Federal Transit Administration gives transit agencies flexibility when developing targets for their specific service areas. The MBTA, CATA, and MWRTA systems have distinct operating contexts, and each agency has taken a somewhat different approach to setting targets, so their targets are presented separately. MPO staff recommends adopting these transit agencies’ safety targets as presented, as they reflect each agency’s understanding of the factors that will affect safety outcomes in their service areas.

### 2.2 MBTA Safety Targets

The MBTA monitors performance and sets federally required targets for four modes: heavy rail (Red, Orange, and Blue Lines), light rail (Green Line and the Mattapan High Speed Line), bus, and The RIDE paratransit system. Its commuter rail network and ferry service are not subject to these Federal Transit Administrations requirements and are addressed outside of the Public Transportation Agency Safety Plans process.

Table 2 shows past averages for the federally required transit safety measures for MBTA heavy rail, light rail, bus, and The RIDE, based on data provided by the MBTA. These averages reflect safety data from Calendar Years (CY) 2020 to 2022, which were the most recent data available at the time of performance target development.

**Table 2  
Past Safety Performance Data for  
MBTA Transit Services (CYs 2020–22 Averages)**

<b>MBTA Mode</b>	<b>Average Fatalities</b>	<b>Average Fatality Rate*</b>	<b>Average Injuries</b>	<b>Average Injury Rate*</b>	<b>Average Safety Events</b>	<b>Average Safety Event Rate*</b>	<b>Average System Reliability Value (miles)</b>
Heavy Rail	0.33	0.02	173	8.30	23	1.13	46,335
Light Rail	0.00	0.00	180	14.33	27	4.83	7,680
Bus	0.67	0.03	257	11.53	89	4.01	27,358
The RIDE	0.00	0.00	24	2.58	30	3.35	N/A

\*Rates are calculated per 1,000,000 Vehicle Revenue Miles.  
CY = calendar year. MBTA = Massachusetts Bay Transportation Authority. N/A = Not available.  
Source = MBTA.

The MBTA updated its existing targets for CY 2024, shown in Table 3. When setting targets, the MBTA varied its approach by the following measures:

- **Fatalities and Fatality Rates:** The MBTA notes that fatality rates vary across modes due to the distinct operating environments and the inherent safety risk exposure associated with each mode.<sup>1</sup> The MBTA is committed to reducing the number of fatalities across its system to zero and continues to invest in proactive solutions to achieve this goal.<sup>2</sup>
- **Injuries and Injury Rates:** The MBTA developed its targets for CY 2024 for these two injury measures by assuming a two percent decrease in the injury rate per vehicle-miles traveled from the CYs 2020–22 average.
- **Safety Events and Safety Event Rates:** The MBTA established its CY 2024 targets for these two measures by assuming a two percent decrease in the safety event rate from the CYs 2020–22 average. The MBTA uses both proactive and reactive safety risk management strategies to reduce the rate of safety events on its system.<sup>3</sup>

<sup>1</sup> MBTA Transit Safety Plan, pg. 26.

<sup>2</sup> MBTA Transit Safety Plan, pg. 26.

<sup>3</sup> MBTA Transit Safety Plan, pg. 29.

- System Reliability: Transit system reliability is measured by the mean number of vehicle-revenue miles (VRM) traveled between major mechanical failures. The system reliability metric “expresses the relationship between safety and asset condition,” as the frequency of breakdowns is often related to the condition of the rolling stock.<sup>4</sup>

**Table 3  
MBTA CY 2024 Safety Performance Targets Summary**

<b>MBTA Mode</b>	<b>Fatalities Target</b>	<b>Fatality Rate Target</b>	<b>Injuries Target</b>	<b>Injury Rate Target</b>	<b>Safety Events Target</b>	<b>Safety Event Rate Target</b>	<b>System Reliability Target (miles)</b>
Heavy Rail	0.00	0.00	170.00	8.13	23.00	1.11	49,000.00
Light Rail	0.00	0.00	79.00	14.04	27.00	4.74	7,900.00
Bus	0.00	0.00	252.00	11.30	88.00	3.93	28,500.00
The RIDE	0.00	0.00	23.00	2.53	29.00	3.28	25,900.00

CY = calendar year. MBTA = Massachusetts Bay Transportation Authority.  
Source = MBTA.

**2.3 CATA Safety Targets**

CATA monitors performance and sets federally required targets for its fixed-route bus service and its demand response service. CATA has established targets for state fiscal year (SFY) 2024 (July 2023 to June 2024), and it expresses its rate targets per one hundred thousand VRM.

Table 4 shows past averages for the federally required transit safety measures for CATA’s fixed-route and demand response services. While these historic data are shown in calendar years, as opposed to state fiscal years, this table provides details about expected fatalities, injuries, safety events and expected system reliability within a 12-month period. The table provides CY 2019–23 averages for fatalities, injury and safety event measures, and system reliability measure.

<sup>4</sup> MBTA Transit Safety Plan, pg. 29.

**Table 4  
Past Safety Performance Data for CATA Transit Services (in CY Averages)**

CATA Mode	2019–23 Average	2019–23 Average Fatality Rate	2019–23 Average Injuries	2019–23 Average Injury Rate	2019–23 Average Safety Events	2019–23 Average Safety Event Rate	2019–23 Average System Reliability Value (miles)
	Fixed-Route Bus	0.0	0.0	0.2	0.1	2.4	0.2
Demand Response	0.0	0.0	0.2	0.2	1.2	0.8	154,352

CATA = Cape Ann Transportation Authority. CY = calendar year.  
Source = CATA.

In general, CATA used past data and averages as the basis for determining its transit safety performance targets. When CATA set targets, it reviewed data for years when injuries or safety events took place and reflected those values when setting injury and safety event rate targets for SFY 2024. Table 5 provides a summary of CATA’s SFY 2024 performance targets.

**Table 5  
CATA SFY 2024 Safety Performance Targets Summary**

CATA Mode	Fatalities Target	Fatality Rate Target	Injuries Target	Injury Rate Target	Safety Events Target	Safety Event Rate Target	System Reliability Target (miles)
Fixed-Route Bus	0.0	0.0	1.0	0.5	2.5	1.5	115,000
Demand Response	0.0	0.0	1.0	0.5	1.5	1.0	135,000

CATA = Cape Ann Transportation Authority. SFY = state fiscal year.  
Source = CATA.

## 2.4 MWRTA Safety Targets

Like CATA, MWRTA monitors performance and sets federally required targets for fixed-route bus service and demand response services. The agency has set targets for the state fiscal year for SFY 2024. MWRTA expresses its fatality, injury, and safety event rates per one hundred thousand VRM to align with data that it reports to the Massachusetts Department of Transportation (MassDOT).

Table 6 shows past averages for the federally required transit safety measures for MWRTA’s fixed-route and demand response services in calendar year format,

which is similar to the data presented for the MBTA and CATA. As with the data shown for CATA, past performance data is shown in calendar years, as opposed to state fiscal years, but it does provide details about expected fatalities, injuries, safety events, and expected system reliability within a 12-month period. As previously mentioned, MWRTA’s rate values are expressed per one hundred thousand VRM.

**Table 6  
Past Safety Performance Data for  
MWRTA Transit Services (CYs 2019–23 Averages)**

MWRTA Mode	2019–23 Average			2019–23 Average			2019–22 Average System Reliability Value (miles)
	Fatalities	Fatality Rate	Average Injuries	Average Injury Rate	Average Safety Events	Average Safety Event Rate	
Fixed-Route Bus	0.0	0.0	0.8	0.1	1.2	0.1	149,558
Demand Response	0.0	0.0	1.0	0.1	1.6	0.2	79,358

CY = calendar year. MWRTA = MetroWest Regional Transit Authority.  
Source = MWRTA.

Table 7 provides a summary of MWRTA’s SFY 2024 performance targets. MWRTA sought to set attainable values for these federally required performance measures.

**Table 7  
MWRTA SFY 2024 Safety Performance Targets Summary**

MWRTA Mode	Fatalities Target	Fatality Rate Target	Injuries Target	Injury Rate Target	Safety Events Target	Safety Event Rate Target	System Reliability Target (miles)
Fixed-Route Bus	0.0	0.0	10.0	0.8	10.0	0.8	75,000.00
Demand Response	0.0	0.0	8.0	1.0	8.0	1.0	75,000.00

MWRTA = MetroWest Regional Transit Authority. SFY = state fiscal year.  
Source = MWRTA.

**3 REQUESTED ACTION AND NEXT STEPS**

Each agency’s set of targets reflects its operating context and anticipated safety-related investments, policies, and safety management activities. Should the MPO adopt this set of transit agency targets as its regional targets, staff will present and describe these targets in the performance chapters of the FFYs 2025–29 Transportation Improvement Program (TIP) document. Going forward, the MPO will work with transit agencies and MassDOT to use transit performance measures and targets to monitor transit safety outcomes in the region, and to consider what effect the transit programs and projects proposed for the MPO’s TIP will have on safety outcomes on the region’s transit systems.

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Boston, MA 02116  
[civilrights@ctps.org](mailto:civilrights@ctps.org)

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