

## **BOSTON REGION METROPOLITAN PLANNING ORGANIZATION**

Jamey Tesler, MassDOT Secretary and CEO and MPO Chair Tegin L. Teich, Executive Director, MPO Staff

## TECHNICAL MEMORANDUM

**DATE:** March 31, 2022

**TO:** Boston Region Metropolitan Planning Organization

FROM: Michelle Scott, MPO Staff

RE: Transit Safety Performance Targets—2022 Update

While public transportation is among the safest surface transportation modes in the United States, recent federal transportation legislation includes specific mandates to strengthen the safety of transit systems.<sup>1</sup> Under the Federal Transit Administration's (FTA) Public Transportation Agency Safety Plan (PTASP) Rule, applicable transit agencies are required to develop safety plans that define how these agencies will implement Safety Management Systems (SMS).<sup>2</sup> These transit plans are required to include targets for performance measures defined in the National Public Transportation Safety Plan, which relate to fatalities, injuries, safety events, and system reliability.<sup>3</sup> Metropolitan planning organizations (MPOs) are federally required to set performance targets for these transit safety performance measures for their regions, in coordination with transit and state agencies. These requirements acknowledge the collaborative relationships needed to manage safety risks on transit systems.

This memorandum summarizes federal transit safety performance requirements and related planning activities conducted by applicable transit agencies in the Boston region. It also describes federally defined transit safety performance measures and 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 to serve as targets for the Boston region, and staff requests that the board do so at its March 31, 2022, meeting. Finally, the memorandum discusses next steps for the MPO to incorporate these targets into its performance-based planning and programming process.

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

<sup>&</sup>lt;sup>1</sup> Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2021* (December 31, 2021), pg. 3-1, accessed March 7, 2022, <a href="https://www.bts.gov/sites/bts.dot.gov/files/2022-01/TSAR">https://www.bts.gov/sites/bts.dot.gov/files/2022-01/TSAR</a> FULL%20BOOK-12-31-2021.pdf.

<sup>&</sup>lt;sup>2</sup> Title 49, Part 673, of the Code of Federal Regulations.

<sup>&</sup>lt;sup>3</sup> Federal Transit Administration, *National Public Transportation Safety Plan* (January 2017), pg. 32-33, accessed March 7, 2022, <a href="https://www.transit.dot.gov/regulations-and-guidance/safety/national-public-transportation-safety-plan">https://www.transit.dot.gov/regulations-and-guidance/safety/national-public-transportation-safety-plan</a>.

#### 1 TRANSIT SAFETY PERFORMANCE OVERVIEW

# 1.1 Federal Rules Regarding Transit Safety Performance

The Moving Ahead for Progress in the 21st Century Act, which was passed by Congress in 2012, created a new Public Transportation Agency Safety Program. This new program resulted in several new FTA rulemakings:

- Transit Asset Management (TAM) (Title 49, Part 625, Code of Federal Regulations [CFR])
- Public Transportation Safety Program (49 CFR Part 670)
- Public Transportation Safety Certification Training Program (49 CFR Part 672)
- Public Transportation Agency Safety Plan (49 CFR Part 673)
- State Safety Oversight (49 CFR Part 674)

The work of the Boston Region MPO relates most directly to the Transit Asset Management and PTASP rules, as well as the Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning rule, which defines MPOs and states' planning and performance management responsibilities.<sup>4</sup> The TAM rule requires public transit providers, MPOs, and states to develop targets for federally established transit asset performance measures in coordination with one another, and the Boston Region MPO has adopted and updated targets for these measures since 2018.<sup>5</sup>

The PTASP rule similarly requires transit providers, MPOs, and states to develop targets for established transit safety measures. This rule also requires certain public transit operators that receive federal funds from FTA's Urbanized Area Formula Grants (Title 49, Section 5307, of the US Code) or that operate rail systems subject to FTA's State Safety Oversight Program to develop agency safety plans (ASPs) that will support implementation of Safety Management Systems (SMS). For more information about ASPs—which describe performance targets, elements of a transit agency's SMS, and other safety information—see the memo titled "Transit Safety Performance Requirements and Targets."

<sup>&</sup>lt;sup>4</sup> The Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning rule is codified in 23 CFR Part 450, 23 CFR Part 771, and 49 CFR Part 613.

<sup>&</sup>lt;sup>5</sup> Information about the MPO's current and past TAM targets is available at www.bostonmpo.org/performance.

<sup>&</sup>lt;sup>6</sup> Boston Region Metropolitan Planning Organization, "Transit Safety Performance Requirements and Targets" (April 8, 2021), <a href="https://www.bostonmpo.org/data/pdf/programs/performance/2021-Transit-Safety-Performance-Targets.pdf">https://www.bostonmpo.org/data/pdf/programs/performance/2021-Transit-Safety-Performance-Targets.pdf</a>.

# 1.2 Safety Performance Measures and Targets Measures Overview

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—that transit providers can use to understand their performance and that the FTA and other federal agencies can use to understand safety trends nationwide. Transit providers track performance in these areas by transit modes, such as fixed-route bus service, light and heavy rail for rapid transit systems, and demand response service. The ASPs and performance measures do not apply to modes that fall under the jurisdiction of the Federal Railroad Administration, such as commuter rail, or the US Coast Guard, which covers ferries.<sup>7</sup> These modes are subject to other federal safety requirements and management processes.

Table 1 describes the measures discussed in transit agency ASPs.<sup>8</sup> For all measures except for the system reliability measure, the goal is to minimize the value.

Table 1
Federally Required Transit Safety Performance Measures

Measure Category	Measure	<b>Desired Direction</b>
Fatalities	Total number of reportable fatalities by mode	Decrease
Fatalities	Fatality rate per total VRM by mode <sup>a</sup>	Decrease
Injuries	Total number of reportable injuries by mode	Decrease
Injuries	Injury rate per total VRM by mode <sup>a</sup>	Decrease
Safety Events	Total number of reportable safety events by mode	Decrease
Safety Events	Rate of safety events per total VRM by mode <sup>a</sup>	Decrease
System Reliability	Mean distance between major mechanical failures by mode (measured in VRM)	Increase

<sup>&</sup>lt;sup>a</sup> Transit agencies may express their rates using a standardizing value (such as 1 million VRM). VRM = vehicle-revenue miles.

Sources: Federal Transit Administration and Boston Region Metropolitan Planning Organization.

<sup>&</sup>lt;sup>7</sup> Federal Transit Administration, "PTASP Frequently Asked Questions" (August 10, 2021), accessed March 7, 2022, <u>transit.dot.gov/PTASP-FAQs</u>.

<sup>&</sup>lt;sup>8</sup> The MBTA's, CATA's, and MWRTA's current ASPs are available at <a href="https://www.bostonmpo.org/calendar/day/20220331">https://www.bostonmpo.org/calendar/day/20220331</a>.

Several definitions, which relate to information that transit agencies need to report to the National Transit Database (NTD), apply to these performance measures.

- Reportable fatalities: These include deaths (confirmed within 30 days) due to collision, derailment, fire, hazardous material spill, acts of God, personal security event, or other safety event meeting relevant thresholds.<sup>9</sup> Fatalities resulting from illness or other natural causes (including those who have been found deceased) are excluded. The PTASP fatality measures also exclude deaths from trespassing or suicide.<sup>10</sup>
- Reportable injuries: These include instances of damage or harm to
  persons that require immediate medical attention away from the scene
  because of a reportable transit safety event. For rail modes, serious
  injuries, which are defined based on severity, are always reportable, even
  if a person was not immediately transported from the scene for medical
  attention. The PTASP injury measures exclude injuries resulting from
  assaults or other crimes.<sup>11</sup>
- Reportable safety events: These include incidents (including accidents and derailments) meeting NTD major reporting thresholds for transit rail, bus, and paratransit. These events may occur on transit right-of-way or infrastructure, or at a transit revenue facility, maintenance facility, or rail yard. They may take place during a transit-related maintenance activity or otherwise involve a transit revenue vehicle. Examples of these events include
  - collisions:
  - o fires:
  - o derailments (mainline and yard), including non-revenue vehicles;
  - o hazardous materials spills; and
  - o acts of God. 12

NTD reporting thresholds for safety events are based on factors such as fatalities, injuries requiring immediate medical attention away from the

<sup>&</sup>lt;sup>9</sup> Federal Transit Administration, *National Transit Database Safety and Security Policy Manual* (January 2021), pg. 26, accessed March 7, 2022, <a href="https://www.transit.dot.gov/ntd/2021-safety-and-security-policy-manual">https://www.transit.dot.gov/ntd/2021-safety-and-security-policy-manual</a>.

<sup>&</sup>lt;sup>10</sup> Federal Transit Administration, "Safety Performance Targets Guide (Version 2)" (June 29, 2021), pg. 1, accessed March 7, 2022, <a href="https://www.transit.dot.gov/regulations-and-programs/safety/public-transportation-agency-safety-program/safety-performance">https://www.transit.dot.gov/regulations-and-programs/safety/public-transportation-agency-safety-program/safety-performance</a>.

<sup>&</sup>lt;sup>11</sup> Federal Transit Administration, "Safety Performance Targets Guide (Version 2)," pg. 2.

<sup>&</sup>lt;sup>12</sup> Federal Transit Administration, *National Transit Database Safety and Security Policy Manual*, pg. 26.

scene, substantial damage, and evacuation for protection of life and safety reasons. Major security events, such as arson or hijacking, are not included in this measure.<sup>13</sup>

• System reliability: As noted in Table 1, transit system reliability is measured by the mean number of vehicle-revenue miles (VRM) traveled between major mechanical failures. The NTD defines a major mechanical failure as "a failure of some mechanical element of the revenue vehicle that prevents the vehicle from completing a scheduled revenue trip or from starting the next scheduled revenue trip because actual movement is limited or because of safety concerns." For example, major mechanical failures on the bus network include breakdowns of brakes, doors, engine cooling systems, steering, axles, and suspension.

### Targets Overview

Generally, transit agencies set safety performance targets for each applicable transit mode for the upcoming year. The FTA provides transit agencies with flexibility to set their targets to meet the specific context of their transit service. These agencies can choose (1) the reporting timeframe they use (calendar, fiscal, or NTD reporting year), (2) the VRM denominator values that transit agencies use for the rate measures, and (3) the methodologies for picking a target value. The FTA encourages transit providers to set realistic safety targets that consider relevant safety goals and objectives, but these providers have the latitude to set aspirational targets, targets that represent improvement over current safety performance levels, or targets that maintain current performance levels. The FTA has not established, and will not impose, penalties for transit agencies that do not meet their targets, which FTA reviews during a transit agency's Triennial Review.

# 1.3 MPO Responsibilities

Like the TAM rule, the PTASP rule requires transit providers to make their safety performance targets available to states and MPOs. These providers must also coordinate with states and MPOs as these entities set their transit safety performance targets, to the maximum extent practicable. As part of this coordination, transit agencies may choose to use a particular year (calendar,

<sup>&</sup>lt;sup>13</sup> Federal Transit Administration, "Safety Performance Targets Guide (Version 2)," pg. 2.

<sup>&</sup>lt;sup>14</sup> Federal Transit Administration, "Safety Performance Targets Guide (Version 2)," pg. 2.

<sup>&</sup>lt;sup>15</sup> MBTA, *MBTA Transit Safety Plan (Revision 1)* (June 3, 2021), pg. 36, https://www.bostonmpo.org/calendar/day/20220331.

<sup>&</sup>lt;sup>16</sup> Federal Transit Administration, "Safety Performance Target Fact Sheet" (August 24, 2020), pg. 1, accessed March 7, 2022, <a href="https://www.transit.dot.gov/safety/public-transportation-agency-safety-program/safety-performance-targets-fact-sheet">https://www.transit.dot.gov/safety/public-transportation-agency-safety-program/safety-performance-targets-fact-sheet</a>.

fiscal, or NTD reporting year) or VRM denominator value (for reporting rate targets) at the request of states or MPOs.

MPOs must also incorporate these targets into their planning processes and documents, as is required for targets for all federal performance areas. In general, an MPO can consider how the projects and programs it selects to receive federal funding may improve transit safety outcomes. In the Boston Region MPO's case, MPO board members can review projects and programs that the MBTA, CATA, and MWRTA submit for inclusion in the Transportation Improvement Program (TIP) in this context, and they can also consider how the MPO's discretionary dollars can be used to reduce fatalities, injuries, safety events, and mechanical failures that may occur on the region's transit systems.

In addition to integrating safety performance measures and targets into their planning processes, MPOs must also reflect them in their planning documents:

- MPOs must incorporate transit safety performance measures, baseline values, and targets in the system performance report included in their next Long-Range Transportation Plan (LRTP). Subsequent LRTPs must describe progress that has been made compared to the baseline values and targets recorded in prior system performance reports.
- When developing TIP documents, MPOs must describe transit safety
  measures and targets and, "to the maximum extent practicable, provide a
  description of the anticipated effect of the TIP toward achieving the
  performance targets identified in the metropolitan transportation plan," the
  goal of which is to link investment priorities to those performance targets.<sup>17</sup>

MPOs must revisit their transit safety targets whenever the TIP or LRTP is updated, at which point the MPOs can decide to maintain or update the targets. MPOs will neither be penalized for not achieving regional transit safety performance targets nor rewarded for attaining them. The FTA will review MPO performance-based planning and programming activities, including those related to transit safety performance, as part of MPO certification reviews.

#### 2 BOSTON REGION TRANSIT AGENCY SAFETY TARGETS

#### 2.1 Overview

To meet federal transit safety requirements, the Boston Region MPO coordinates with the MBTA, CATA and MWRTA, which all receive FTA Urbanized Area Formula Grant funding and submit projects and programs to the MPO's TIP. As previously mentioned, the FTA gives transit agencies flexibility when developing targets for their specific service areas. The MBTA, CATA, and MWRTA systems

<sup>&</sup>lt;sup>17</sup> 23 CFR Part 450.326.

have distinct operating contexts that may shape their decisions when setting safety 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, including the characteristics of their local operating environments and contexts and planned investment, policies, and safety-management activities.

# 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. Based on calendar year (CY) 2018–20 averages, each year the MBTA runs approximately 23,036,000 VRM of service on its heavy rail system; 5,681,000 VRM on its light rail system; 22,882,000 VRM on its bus network; and 13,443,000 VRM for The RIDE. Its commuter rail network and ferry service are not subject to these FTA requirements and are addressed outside of the PTASP 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 CYs 2018 to 2020.

Table 2
Past Safety Performance Data for
MBTA Transit Services (CYs 2018–20 Averages)

MBTA Mode	Average Fatalities	Average Fatality Rate <sup>a</sup>	Average Injuries	Average Injury Rate <sup>a</sup>	Average Safety Events	Average Safety Event Rate <sup>a</sup>	Average System Reliabilty Value <sup>b</sup>
Heavy Rail	0.00	0.00	199.00	8.62	24.00	1.04	47,166.00
IXali	0.00	0.00	155.00	0.02	24.00	1.04	47,100.00
Light							
Rail	0.00	0.00	86.00	15.00	32.00	5.69	8,017.00
_				4400	400.00		
Bus	1.00	0.06	330.00	14.29	122.00	5.32	28,300.00
The							
RIDE	0.00	0.00	27.00	1.95	27.00	2.03	51,733.00

Notes: This table reflects data available at the time the MBTA developed its targets.

CY = calendar year. MBTA = Massachusetts Bay Transportation Authority. VRM = vehicle-revenue miles.

Source: MBTA and the Boston Region Metropolitan Planning Organization staff.

<sup>&</sup>lt;sup>a</sup> Fatality, injury, and safety event rates are expressed per one million VRM. Rate values have been rounded to the nearest hundredth.

<sup>&</sup>lt;sup>b</sup> The system reliability measure is expressed as mean VRM traveled per major mechanical failure.

The MBTA's safety performance targets for CY 2022 are shown in Table 3. When setting targets, the MBTA varied its approach by measure:

- 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. 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>18</sup>
- Injuries and Injury Rates: The MBTA set its targets for these two injury measures by assuming a two percent decrease in the injury rate from the CYs 2018–20 average for each mode.
- Safety Events and Safety Event Rates: The MBTA established targets
  for these two measures by assuming a two percent decrease in the safety
  event rate from the CYs 2018–20 average. The MBTA uses both
  proactive and reactive safety risk management strategies to reduce the
  rate of safety events on its system.
- System Reliability: As previously mentioned, transit system reliability is measured by the mean number of VRM traveled between major mechanical failures. When setting system reliability targets, the MBTA reviewed CYs 2018–20 averages of major mechanical failures and vehicle-miles traveled. As the MBTA plans to introduce new or refurbished vehicles into its bus, heavy rail, and light rail fleets over the next few years, the MBTA will continue to monitor them. During this additional "burn-in" period, there may be a decrease in reliability. With this possibility in mind, the MBTA will strive to maintain the highest level of system reliability in CY 2022.<sup>19</sup>

<sup>&</sup>lt;sup>18</sup> MBTA, MBTA Transit Safety Plan (Revision 1), pg. 34.

<sup>&</sup>lt;sup>19</sup> MBTA, MBTA Transit Safety Plan (Revision 1), pg. 36.

Safety **Event Fatality** Injury Safety System **MBTA Fatalities** Rate Injuries Rate **Events** Rate Reliability Mode **Target Target**<sup>a</sup> **Target Target**<sup>a</sup> **Target** Target<sup>a</sup> Target<sup>b</sup> Heavy 0.00 0.00 195.00 8.46 23.00 1.00 47,500.00 Rail Light Rail 0.00 0.00 84.00 14.70 31.00 5.58 7,500.00 Bus 0.00 0.00 324.00 14.00 120.00 5.21 25,000.00 The RIDE<sup>c</sup> 0.00 0.00 27.00 1.91 26.00 1.99 60,000.00

Table 3
MBTA CY 2022 Safety Performance Targets

CY = calendar year. MBTA = Massachusetts Bay Transportation Authority. VRM = vehicle-revenue miles. Source: MBTA and the Boston Region Metropolitan Planning Organization staff.

# 2.3 CATA Safety Targets

CATA monitors safety performance and sets federally required targets for its fixed-route bus service and its demand response service. According to averages calculated using state fiscal years (SFYs) 2017–21 data, CATA's demand response system runs about 125,000 VRM annually, and its fixed route bus system runs about 245,000 VRM annually. Table 4 provides SFY 2017–21 averages for the fatality, injury, safety event, and system reliability measures for CATA's fixed-route bus and demand response systems. MPO staff gathered this information from CATA as well as from the NTD's Monthly Modal Time Series data files (for fatalities, injuries, and safety events), its Major Safety Events time series data files (for safety events), its Annual Database Vehicle Maintenance files (for major mechanical failures), and its Monthly Module Adjusted Data Release (for VRM).<sup>21</sup>

<sup>&</sup>lt;sup>a</sup> Fatality, injury, and safety event rates are expressed per one million VRM. Rate values have been rounded to the nearest hundredth.

<sup>&</sup>lt;sup>b</sup> The system reliability measure is expressed as mean VRM traveled per major mechanical failure.

<sup>&</sup>lt;sup>c</sup> The injuries target for The RIDE remains the same as past averages due to rounding.

<sup>&</sup>lt;sup>20</sup> MPO staff calculated these VRM estimates using the NTD's January 2022 Monthly Module Adjusted Data release, available at <a href="https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release">https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release</a>.

<sup>&</sup>lt;sup>21</sup> Specific data sources include the March 7, 2022, Monthly Modal Time Series file (available at https://data.transportation.gov/Public-Transit/Monthly-Modal-Time-Series/5ti2-5uiv), the March 7, 2022, Major Safety Events file (available at <a href="https://data.transportation.gov/Public-Transit/Major-Safety-Events/9ivb-8ae9">https://data.transportation.gov/Public-Transit/Major-Safety-Events/9ivb-8ae9</a>), the 2016-20 Annual Database Vehicle Maintenance files (available at <a href="https://www.transit.dot.gov/ntd/ntd-data">https://www.transit.dot.gov/ntd/ntd-data</a>), and the January 2022 Monthly Module Adjusted Data Release file (available at <a href="https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release">https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release</a>).

Table 4
Past Safety Performance Data for CATA
Transit Services (SFY 2017–21 Averages)

CATA Mode	Average Fatalities	Average Fatality Rate <sup>a</sup>	Average Injuries	Average Injury Rate <sup>a</sup>	Average Safety Events	Average Safety Event Rate <sup>a</sup>	Average System Reliabilty Value <sup>b</sup>
Fixed- Route Bus	0.00	0.00	0.80	0.37	0.60	0.28	72,781.31
Demand Response	0.00	0.00	0.00	0.00	0.20	0.15	124,718.00

Note: Values have been rounded to the nearest hundredth.

Sources: CATA, the National Transit Database, and the Boston Region Metropolitan Planning Organization staff.

Table 5 provides a summary of CATA's SFY 2022 performance targets, which cover the period from July 2021 to June 2022. Rate targets are expressed per one hundred thousand VRM. In general, CATA used past data and averages as the basis for determining its transit safety performance targets for SFY 2022. When developing targets related to safety events, CATA also accounted for the number of preventable accidents that occurred on its systems in SFY 2021 (10 on its fixed-route system, and four on its demand response system), in addition to incidents reported to the NTD. Preventable accidents, which are distinct from NTD-defined safety events, are defined by MassDOT as "those accidents in which the transit driver is typically deemed responsible or partly responsible for the occurrence of the accident."<sup>22</sup>

<sup>&</sup>lt;sup>a</sup> Fatality, injury, and safety event rates are expressed per one hundred thousand VRM.

<sup>&</sup>lt;sup>b</sup> The system reliability measure is expressed as mean VRM traveled per major mechanical failure.

CATA = Cape Ann Transportation Authority. CY = calendar year VRM = vehicle-revenue miles.

<sup>&</sup>lt;sup>22</sup> Massachusetts Department of Transportation, *Tracker 2017: MassDOT's Annual Performance Report*, pg. 50, accessed March 17, 2022, <a href="https://www.mass.gov/doc/2017-annual-performance-report/download">https://www.mass.gov/doc/2017-annual-performance-report/download</a>.

Table 5
CATA SFY 2022 Safety Performance Targets

CATA Mode	Fatalities Target	Fatality Rate Target <sup>a</sup>	Injuries Target	Injury Rate Target <sup>a</sup>	Safety Events Target	Safety Event Rate Target <sup>a</sup>	System Reliabilty Target <sup>b</sup>
Fixed- Route Bus	0.0	0.0	1.0	0.5	2.5	1.5	70,000.0
Demand Response	0.0	0.0	1.0	0.5	1.5	1.0	135,000.0

Note: Values have been rounded to the nearest tenth.

Source: CATA and the Boston Region Metropolitan Planning Organization staff.

# 2.4 MWRTA Safety Targets

Like CATA, MWRTA monitors performance and sets federally required targets for fixed-route bus service and demand response services. According to averages calculated using SFYs 2017–21 data, MWRTA's demand response system runs about 909,000 VRM annually, and its fixed route bus system runs about 1,149,000 VRM annually.<sup>23</sup> Table 6 shows SFY 2017–21 averages for the federally required transit safety measures for MWRTA's transit services. MPO staff gathered this information from the NTD's Monthly Modal Time Series data files (for fatalities, injuries, and safety events), its Major Safety Events time series data files (for safety events), its Annual Database Vehicle Maintenance files (for major mechanical failures), and its Monthly Module Adjusted Data Release (for VRM).<sup>24</sup>

<sup>&</sup>lt;sup>a</sup> Fatality, injury, and safety event rates are expressed per one hundred thousand VRM.

<sup>&</sup>lt;sup>b</sup> The system reliability measure is expressed as mean VRM traveled per major mechanical failure.

CATA = Cape Ann Transportation Authority. SFY = state fiscal year. VRM = vehicle-revenue miles.

<sup>&</sup>lt;sup>23</sup> MPO staff calculated these VRM estimates using the NTD's January 2022 Monthly Module Adjusted Data release, available at <a href="https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release">https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release</a>.

<sup>&</sup>lt;sup>24</sup> Specific data sources include the March 7, 2022, Monthly Modal Time Series file (available at https://data.transportation.gov/Public-Transit/Monthly-Modal-Time-Series/5ti2-5uiv), the March 7, 2022, Major Safety Events file (available at <a href="https://data.transportation.gov/Public-Transit/Major-Safety-Events/9ivb-8ae9">https://data.transportation.gov/Public-Transit/Major-Safety-Events/9ivb-8ae9</a>), the 2016-20 Annual Database Vehicle Maintenance files (available at <a href="https://www.transit.dot.gov/ntd/ntd-data">https://www.transit.dot.gov/ntd/ntd-data</a>) and the January 2022 Monthly Module Adjusted Data Release file (available at <a href="https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release">https://www.transit.dot.gov/ntd/data-product/monthly-module-adjusted-data-release</a>).

Table 6
Past Safety Performance Data for
MWRTA Transit Services (SFYs 2017–21 Averages)

MWRTA Mode	Average Fatalities	Average Fatality Rate <sup>a</sup>	Average Injuries	Average Injury Rate <sup>a</sup>	Average Safety Events	Average Safety Event Rate <sup>a</sup>	Average System Reliabilty Value <sup>b</sup>
Fixed- Route							
Bus	0.00	0.00	0.00	0.00	0.60	0.05	101,030.13
Demand Response	0.00	0.00	0.60	0.06	1.40	0.14	145,324.63

Note: Values have been rounded to the nearest hundredth.

MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year. VRM = vehicle-revenue miles.

Sources: MWRTA, the National Transit Database, and the Boston Region Metropolitan Planning Organization staff.

Table 7 provides a summary of MWRTA's SFY 2022 performance targets, which include fatality, injury, and safety event rates expressed per one hundred thousand VRM. MWRTA set its transit safety performance targets by reviewing historic safety data for its fleet and by planning to operate as safely as possible and by proactively addressing hazards as they are identified. MWRTA's review of past data also accounted for the number of preventable accidents on its system in recent years. On its fixed-route system, MWRTA had 16 preventable accidents in SFY 2019, 10 in SFY 2020, and nine in SFY 2021. On its demand response system, it had 18 preventable accidents in SFY 2019, 10 in SFY 2020, and three in SFY 2021. MWRTA also considered the risk potential for different types of injuries on its systems when setting targets.

<sup>&</sup>lt;sup>a</sup> Fatality, injury, and safety event rates are expressed per one hundred thousand VRM.

<sup>&</sup>lt;sup>b</sup> The system reliability measure is expressed as mean VRM traveled per major mechanical failure.

Table 7
MWRTA SFY 2022 Safety Performance Targets

MWRTA Mode	Fatalities Target	Fatality Rate Target <sup>a</sup>	Injuries Target	Injury Rate Target <sup>a</sup>	Safety Events Target	Safety Event Rate Target <sup>a</sup>	System Reliability Target <sup>b</sup>
Fixed- Route Bus	0.00	0.00	12.00	1.00	18.00	1.50	75,000.00
Demand Response	0.00	0.00	8.00	1.00	12.00	1.50	75,000.00

Note: Values have been rounded to the nearest hundredth.

MWRTA = MetroWest Regional Transit Authority. SFY = state fiscal year. VRM = vehicle-revenue miles.

Source: MWRTA and the Boston Region Metropolitan Planning Organizaiton staff.

## 3 REQUESTED ACTION AND NEXT STEPS

MPO staff recommends that the Boston Region MPO vote to adopt this set of MBTA, CATA, and MWRTA performance targets for the Boston region. As previously mentioned, each agency's set of targets reflect 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 2023–27 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.

MS/ms

<sup>&</sup>lt;sup>a</sup> Fatality, injury, and safety event rates are expressed per one hundred thousand VRM.

<sup>&</sup>lt;sup>b</sup> The system reliability measure is expressed as mean VRM traveled per major mechanical failure.

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To request this information in a different language or in an accessible format, please contact

Title VI Specialist
Boston Region MPO
10 Park Plaza, Suite 2150
Boston, MA 02116

civilrights@ctps.org

#### By Telephone:

857.702.3702 (voice)

For people with hearing or speaking difficulties, connect through the state MassRelay service:

Relay Using TTY or Hearing Carry-over: 800.439.2370

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