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Performance Measures

PERFORMANCE MEASURES

Introduction

“On November 15, 2021, President Biden signed the [Infrastructure Investment and Jobs Act \(IIJA\)](#) ([Public Law 117-58, also known as the “Bipartisan Infrastructure Law”](#)) into law. The Bipartisan Infrastructure Law (BIL) is the largest long-term investment in our infrastructure and economy in our Nation’s history. It provides \$550 billion over fiscal years 2022 through 2026 in new Federal investment in infrastructure, including in roads, bridges, and mass transit, water infrastructure, resilience, and broadband.” (FHWA) The BIL provides approximately \$350 billion for Federal highway programs over a five-year period (fiscal years 2022 through 2026). Most of this funding is apportioned (distributed) to States based on formulas specified in Federal law. However, the BIL Infrastructure Law also provides funding through a wide range of competitive grant programs.

2021 Planning Emphasis Areas:

Tackling the Climate Crisis

Transition to a Clean Energy, Resilient Future Federal Highway Administration (FHWA) divisions and Federal Transit Administration (FTA) regional offices should work with State departments of transportation (State DOT), metropolitan planning organizations (MPO), and providers of public transportation to ensure that our transportation plans and infrastructure investments help achieve the national greenhouse gas reduction goals of 50-52 percent below 2005 levels by 2030, and net-zero emissions by 2050, and increase resilience to extreme weather events and other disasters resulting from the increasing effects of climate change. Field offices should encourage State DOTs and MPOs to use the transportation planning process to accelerate the transition toward electric and other alternative fueled vehicles, plan for a sustainable infrastructure system that works for all users, and undertake actions to prepare for and adapt to the impacts of climate change. Appropriate Unified Planning Work Program work tasks could include identifying the barriers to and opportunities for deployment of fueling and charging infrastructure; evaluating opportunities to reduce greenhouse gas emissions by reducing single-occupancy vehicle trips and increasing access to public transportation, shift to lower emission modes of transportation ; and

identifying transportation system vulnerabilities to climate change impacts and evaluating potential solutions. We encourage you to visit FHWA's Sustainable Transportation or FTA's Transit and Sustainability Webpages for more information. (See EO 14008 on "Tackling the Climate Crisis at Home and Abroad," EO 13990 on "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." EO 14030 on "Climate-Related Financial Risk," See also FHWA Order 5520 "Transportation System Preparedness and Resilience to Extreme Weather Events," FTA's "Hazard Mitigation Cost Effectiveness Tool," FTA's "Emergency Relief Manual," and "TCRP Document 70: Improving the Resilience of Transit Systems Threatened by Natural Disasters")

Equity and Justice⁴⁰ in Transportation Planning

FHWA Division and FTA regional offices should work with State DOTs, MPOs, and providers of public transportation to advance racial equity and support for underserved and disadvantaged communities. This will help ensure public involvement in the planning process and that plans and strategies reflect various perspectives, concerns, and priorities from impacted areas. We encourage the use of strategies that: (1) improve infrastructure for non-motorized travel, public transportation access, and increased public transportation service in underserved communities; (2) plan for the safety of all road users, particularly those on arterials, through infrastructure improvements and advanced speed management; (3) reduce single-occupancy vehicle travel and associated air pollution in communities near high-volume corridors; (4) offer reduced public transportation fares as appropriate; (5) target demand-response service towards communities with higher concentrations of older adults and those with poor access to essential services; and (6) consider equitable and sustainable practices while developing transit-oriented development including affordable housing strategies and consideration of environmental justice populations. Executive Order 13985 (Advancing Racial Equity and Support for Underserved Communities) defines the term "equity" as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian

3 Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. The term “underserved communities” refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the list in the preceding definition of “equity.” In addition, Executive Order 14008 and M-21-28 provides a whole-of-government approach to advancing environmental justice by stating that 40 percent of Federal investments flow to disadvantaged communities. FHWA Division and FTA regional offices should work with State DOTs, MPOs, and providers of public transportation to review current and new metropolitan transportation plans to advance Federal investments to disadvantaged communities. To accomplish both initiatives, our joint planning processes should support State and MPO goals for economic opportunity in disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, recreation, and health care.

Complete Streets

FHWA Division and FTA regional offices should work with State DOTs, MPOs and providers of public transportation to review current policies, rules, and procedures to determine their impact on safety for all road users. This effort should work to include provisions for safety in future transportation infrastructure, particularly those outside automobiles. A complete street is safe, and feels safe, for everyone using the street. FHWA and FTA seek to help Federal aid recipients plan, develop, and operate streets and networks that prioritize safety, comfort, and access to destinations for people who use the street network, including pedestrians, bicyclists, transit riders, micro-mobility users, freight delivery services, and motorists. The goal is to provide an equitable and safe transportation network for travelers of all ages and abilities, including those from marginalized communities facing historic disinvestment. This vision is not achieved through a one-size-fits-all solution – each complete street is unique and developed to best serve its

community context and its primary role in the network. Per the National Highway Traffic Safety Administration’s 2019 data, 62 percent of the motor vehicle crashes that resulted in pedestrian fatalities took place on arterials. Arterials tend to be designed for vehicle movement rather than mobility for non-motorized users and often lack convenient and safe crossing opportunities. They can function as barriers to a safe travel network for road users outside of vehicles. To be considered complete, these roads should include safe pedestrian facilities, safe transit stops (if present), and safe crossing opportunities on an interval necessary for accessing destinations. A safe and complete network for bicycles can also be achieved through a safe and comfortable bicycle facility located on the roadway, adjacent to the road, or on a nearby parallel corridor. Jurisdictions will be encouraged to prioritize safety improvements and speed management on arterials that are essential to creating complete travel networks for those without access to single-occupancy vehicles.

Public Involvement

Early, effective, and continuous public involvement brings diverse viewpoints into the decisionmaking process. FHWA Division and FTA regional offices should encourage MPOs, State DOTs, and providers of public transportation to increase meaningful public involvement in transportation planning by integrating Virtual Public Involvement (VPI) tools into the overall public involvement approach while ensuring continued public participation by individuals without access to computers and mobile devices. The use of VPI broadens the reach of information to the public and makes participation more convenient and affordable to greater numbers of people. Virtual tools provide increased transparency and access to transportation planning activities and decisionmaking processes. Many virtual tools also provide information in visual and interactive formats that enhance public and stakeholder understanding of proposed plans, programs, and projects. Increasing participation earlier in the process can reduce project delays and lower staff time and costs. More information on VPI is available [here](#).

Strategic Highway Network (STRAHNET)/U.S. Department of Defense (DOD)

Coordination FHWA Division and FTA regional offices should encourage MPOs and State DOTs to coordinate with representatives from DOD in the transportation planning and project programming process on infrastructure and connectivity needs for STRAHNET routes and other public roads that connect to DOD facilities. According to the Declaration of Policy in 23 U.S.C. 101(b)(1), it is in the national interest to accelerate construction of the Federal-aid highway system, including the Dwight D. Eisenhower National System of Interstate and Defense Highways, because many of the highways (or portions of the highways) are inadequate to meet the needs of national and civil defense. The DOD's facilities include military bases, ports, and depots. The road networks that provide access and connections to these facilities are essential to national security. The 64,200-mile STRAHNET system consists of public highways that provide access, continuity, and emergency transportation of personnel and equipment in times of peace and war. It includes the entire 48,482 miles of the Dwight D. Eisenhower National System of Interstate and Defense Highways and 14,000 miles of other non-Interstate public highways on the National Highway System. The STRAHNET also contains approximately 1,800 miles of connector routes linking more than 200 military installations and ports to the primary highway system. The DOD's facilities are also often major employers in a region, generating substantial volumes of commuter and freight traffic on the transportation network and around entry points to the military facilities. Stakeholders are encouraged to review the STRAHNET maps and recent Power Project Platform (PPP) studies. These can be a useful resource in the State and MPO areas covered by these route analyses.

Federal Land Management Agency (FLMA)

Coordination FHWA Division and FTA regional offices should encourage MPOs and State DOTs to coordinate with FLMA's in the transportation planning and project programming process on infrastructure and connectivity needs related to access routes and other public roads and transportation services that connect to Federal lands. Through joint coordination, the State DOTs, MPOs, Tribal Governments, FLMA's, and local agencies should focus on integration of their

transportation planning activities and develop cross-cutting State and MPO long range transportation plans, programs, and corridor studies, as well as the Office of Federal Lands 5 Highway's developed transportation plans and programs. Agencies should explore opportunities to leverage transportation funding to support access and transportation needs of FLMAs before transportation projects are programmed in the Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP). Each State must consider the concerns of FLMAs that have jurisdiction over land within the boundaries of the State (23 CFR 450.208(a)(3)). MPOs must appropriately involve FLMAs in the development of the metropolitan transportation plan and the TIP (23 CFR 450.316(d)). Additionally, the Tribal Transportation Program, Federal Lands Transportation Program, and the Federal Lands Access Program TIPs must be included in the STIP, directly or by reference, after FHWA approval in accordance with 23 U.S.C. 201(c) (23 CFR 450.218(e)).

Planning and Environment Linkages (PEL)

FHWA Division and FTA regional offices should encourage State DOTs, MPOs and Public Transportation Agencies to implement PEL as part of the transportation planning and environmental review processes. The use of PEL is a collaborative and integrated approach to transportation decisionmaking that considers environmental, community, and economic goals early in the transportation planning process, and uses the information, analysis, and products developed during planning to inform the environmental review process. PEL leads to interagency relationship building among planning, resource, and regulatory agencies in the early stages of planning to inform and improve project delivery timeframes, including minimizing duplication and creating one cohesive flow of information. This results in transportation programs and projects that serve the community's transportation needs more effectively while avoiding and minimizing the impacts on human and natural resources. More information on PEL is available [here](#).

Data in Transportation Planning

To address the emerging topic areas of data sharing, needs, and analytics, FHWA Division and FTA regional offices should encourage State DOTs, MPOs, and providers of public transportation to incorporate data sharing and consideration into the transportation planning process, because data assets have value across multiple programs. Data sharing principles and data management can be used for a variety of issues, such as freight, bike and pedestrian planning, equity analyses, managing curb space, performance management, travel time reliability, connected and autonomous vehicles, mobility services, and safety. Developing and advancing data sharing principles allows for efficient use of resources and improved policy and decisionmaking at the State, MPO, regional, and local levels for all parties.

Metropolitan Planning

The BIL continues the Metropolitan Planning Program, which establishes a cooperative, continuous, and comprehensive (3C) framework for making transportation investment decisions in metropolitan areas. Program oversight remains a joint Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) responsibility. Except as specified within the BIL legislation, the BIL continues all funding features that applied to Metropolitan Planning (PL) funding under the FAST Act.

In December 2015, the Federal Surface Transportation Authorization known as Fixing America's Surface Transportation (FAST) Act passed into law. The FAST Act "largely maintains current structures and funding shares between highways and transit" and "makes changes and reforms to many Federal transportation programs, including streamlining the approval processes for new transportation projects, providing new safety tools, and establishing new programs to advance critical freight projects" (source: U. S. DOT website). The FAST Act retains most of the planning requirements of prior federal regulations, i.e. Moving Ahead for Progress in the 21st Century (MAP-21) and the Safe Accountable Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

The FAST Act added two additional factors to the eight planning factors for both metro and statewide planning identified in MAP-21:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
- Increase the safety of the transportation system for all motorized and non-motorized users;
- Increase the ability of the transportation system to support homeland security and to safeguard the personal security of motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- Enhance travel and tourism.

A key feature of the FAST Act legislation that is maintained from prior legislation “is the establishment of a performance- and outcome-based program. The objective...is for States to invest resources in projects that collectively will make progress toward the achievement of the national goals.” National performance goals have been established in seven areas:

- Safety - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- Infrastructure condition - To maintain the highway infrastructure asset system in a state of good repair.
- Congestion reduction - To achieve a significant reduction in congestion on the National Highway System.
- System reliability - To improve the efficiency of the surface transportation system.
- Freight movement and economic vitality - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- Environmental sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- Reduced project delivery delays - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Performance measures and targets are required to be established by FHWA, state DOTs, MPOs and other stakeholders in consultation with each other over the upcoming years. The Montachusett MPO is committed to working with MassDOT, FHWA and other partners to develop and track the performance of elements of the regional transportation system and to utilize these performance measures as a tool or guide in the transportation planning process.

Regional Transportation Plan – Performance Measures

MRPC staff has continued to review available data, information, state and federal goals and requirements in order to develop and expand regional local performance measures. A series of performance measures were identified during the development of the 2016 Regional

Transportation Plan (RTP). These performance measures form the basis for system monitoring in the Montachusett Region only. Additionally, the regional performance measures are incorporated into the decision-making process for the TIP and where applicable are linked to transportation investment decisions, i.e. the Transportation Evaluation Criteria (TEC). As these measures are further defined and reviewed by the MPO, it is expected that the TEC will also be revised and/or updated to reflect them. Data for the regional performance measures are derived from a combination of agency data collection efforts, studies, and statewide databases made available to the MRPC.

Since the endorsement of the 2020 Montachusett Regional Transportation Plan (“Working Toward the Future”), in July 2019, MassDOT has suggested and the MPO has agreed to amend the regions performance measures to better reflect the purpose of such measures and allow for realistic measurement of achieving the regions goals. Also, since endorsement of the 2020 RTP, the MPO has adopted a number of federal performance targets which are outlined in this chapter. The following tables state the performance measures adopted by the Montachusett MPO during the development of this 2024 RTP.

Regional Transportation Plan Goals and Performance Measures Summary

Goal 1 - Improve and Maintain Safety and Security

Performance Measures

Identify and/or implement 4 to 5 corrective projects at identified top 10 high incident locations over a 10-year period, or at least 10% of target funding utilized in projects at these locations over a 10- year period ending in 2026.

Increase the number of communities involved in the Safe Routes to School program.

Maintain the average number of preventable fixed route crashes under 1+ per 33,000 vehicle revenue miles and demand responsive crashes under 1+ per 100,000 vehicle revenue miles.

Goal 2 - Reduce Congestion and Improve Mobility

Performance Measures

Increase the number of Complete Street certified communities within the region. Seek to have a majority of communities formally certified within by 2026.

Goal 3 – Promote and Seek Equitable Transportation for All

Performance Measures

Increase formal membership and public outreach within Montachusett Joint Transportation Committee (MJTC) of Title VI and Environmental Justice groups.

Goal 4 – Improve System Preservation and Maintenance for All Modes

Performance Measures

Increase the percentage of categorized “Good” to “Excellent” federal aid eligible roadway miles within the region over a 10-year period dating back to 2016.

Decrease the number of identified “Structurally Deficient” bridges within the region compared to what was reported in the 2024 RTP.

Maintain the number of road service calls due to mechanical failures on the fixed route and demand responsive systems under 10 per month.

Maintain a percentage of operated scheduled trips per month at 90% or better.

Achieve an average on time ranking on the fixed route system of 95% by 2040.

Goal 5 – Improve Economic Vitality

Performance Measures

Review and analyze 1 to 2 freight corridors through development of a Unified Planning Work Program (UPWP) task by 2029.

Goal 6 – Improve and Promote Healthy Modes and Transportation Options
Performance Measures
Conduct 3 to 4 walk audits by 2029 in interested communities.
Establish a top 5 list of prioritized trail connections, within and across communities, by 2029 with updates in each subsequent RTP.

Goal 7 – Reduce Green House Gas and Promote Environmental Practices and Sustainability
Performance Measures
Increase percentage of alternative fuel vehicles within the overall transit fleet by 2025.
Increase number of electric vehicle charging stations in the region year over year, through 2025.

As previously stated, these performance measures are to be utilized on a regional level to assist in monitoring RTP goals. They are not intended to replace any state performance measure adopted by the MPO.

Statewide and Regional Transportation Performance Management

FHWA defines Transportation Performance Management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. In short, Transportation Performance Management:

- Is systematically applied, a regular ongoing process
- Provides key information to help decision makers understand the consequences of investment decisions across transportation assets or modes
- Improving communications between decision makers, stakeholders, and the traveling public.
- Ensuring targets and measures are developed in cooperative partnerships and based on data and objective information.

On a regional level, MRPC relies on its regional Performance Measures (systems information) to inform the TEC process (investment and policy decisions) to achieve regional performance goals. On the national level, FHWA has established its own Performance Measures to inform decision making.

Effective on April 14, 2016 FHWA established a final rule on the first of its Performance Measures, Safety Measures (PM1). For Calendar Year (CY) 2022, targets related to PM1 were set by MassDOT and adopted by the Montachusett MPO on January 19, 2022. Subsequently, FHWA established two additional performance measures that state Departments of Transportation and MPOs needed to adopt and track. The National Highway System Bridge and Pavement Condition Performance Measure (PM 2) and the Systems Performance Measures, Reliability, Congestion and Emissions (PM 3) were required to be established by the end of 2018. MassDOT then provided statewide target information for PM 2 and PM 3 to the Montachusett MPO for their review and either their adoption by the MPO or the establishment of their own regional PM 2 and PM 3. After review and discussion, the Montachusett MPO formally adopted the statewide PM 2 targets on October 17, 2018 and PM 3 targets on September 19, 2019.

Safety Performance Measures (PM1)

Montachusett MPO has chosen to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2023. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trend lines for all FHWA-defined safety measures.

For the CY 2023 Total Number of Fatalities Target¹, due to the higher rates of speeding that was caused by decreased vehicle miles traveled (VMT) during the pandemic shutdowns in 2020 and the ongoing impacts in 2021, the total number of fatalities increased in 2020 and 2021 relative to previous years. MassDOT cannot use a pure trendline approach to set the CY 2023 targets since the Investment and Jobs Act (IIJA) requires “performance targets to demonstrate constant or improved performance”. In light of this, MassDOT developed the CY 2023 targets “... by projecting 2022 fatalities to be equal to 3% higher than the state’s lowest year in recent history (2019), and projecting 2023 fatalities to be equal to 3% lower than 2019.” The result is a

¹ Source for all data and Targets: MassDOT CY23 Safety Performance Targets (PM1)

projected future downward trend. The five-year average fatalities are projected to decrease from 360 (2017-2021) to 355 (2019-2023) which is a 1.69% decrease. The Rate of Fatalities per 100 million vehicle miles traveled represents five-year average fatalities divided by five-year average VMTs. The pandemic severely impacted VMT causing the fatality rates to rise in 2020 with significantly lower VMT and a slightly higher number of fatalities, along with the ongoing impacts in 2021. The CY 2023 projection is 0.59 fatalities per 100 million VMT for the five-year average of 2019-2023.

For the CY 2023 Total Serious Injury Target, the 2020-2022 serious injury data were not finalized in the IMPACT crash data portal at the time of the CY 2023 target setting. MassDOT used the total serious injury data that was available as of April 2022. Due to the higher speeding rates caused by the decreased VMT during the pandemic shutdowns in 2020 and the ongoing impacts in 2021, the total serious injuries increased in 2020 and 2021 relative to previous years. In light of this, MassDOT developed the CY 2023 targets by projecting the 2022 annual total serious injuries to be equal to the lowest year in recent history and the 2023 annual total serious injuries to continue a downward trend at roughly 10% annual decrease, that reflects the average decreases in the years in which the state experienced reductions in total serious injuries. This resulted in a projected five-year average number of total serious injuries dropping from 2,626 (2017-2021) to 2,569 (2019-2023) for a reduction of 1.99%. The Rate of Total Serious Injuries per 100 million vehicle miles traveled represents five-year average divided by five-year average VMTs. The pandemic severely impacted the total serious injury rate. Following the methods used for the Rate of Fatalities above, the projection is expected to be 4.25 total serious injuries per 100 million VMT (2019-2023) which is down from 4.30 total serious injuries per 100 million VMT (2017-2021) for a reduction of 1.57%.

For the CY 2023 Total Number of Non-Motorized Fatalities and Serious Injury Target, the total number of non-motorist fatalities and serious injuries decreased significantly during the beginning of the pandemic in 2020, followed by an increase in 2021 and further increase to start 2022 which made tracking the trend difficult. In light of this, total non-motorized fatalities and serious injuries for 2022 were set to be equal to 3% higher than the most recent lowest year, and 2023 were set to be 3% lower than the most recent lowest year. This resulted in a five-year

average of total non-motorist fatalities and serious injuries reducing from 467 (2017-2021) to 437 (2019-2023) for a reduction of 6.86%.

Fatalities and serious injuries are expected to decrease based on MassDOT efforts in the areas of speed management and safe systems, among other safety strategies. In all safety categories, MassDOT has established a long-term target of “Toward Zero Deaths” through MassDOT’s Performance Measures Tracker and will be establishing safety targets for the MPO to consider for adoption each calendar year. While the MPO is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPOs to adopt MassDOT’s annual targets or to establish their own each year.

The safety measures MassDOT has established for CY 2023, and that Montachusett MPO has adopted, are as follows:

- 1) Fatalities: The target number of fatalities for years CY 2023 is 355 (2019-2023), down from an average of 360 fatalities for the years 2017-2021. [See Figure 1 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 2) Rate of Fatalities per 100 million VMT: The target fatality rate for years CY 2023 is 0.59 (2019-2023), which is equal to the average for years 2017–2021. [See Figure 1 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 3) Serious Injuries: The target number of serious injuries for CY 2023 is 2,569 (2019-2023), down from the average of 2,626 for years 2017–2021. [See Figure 2 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 4) Rate of Serious Injuries per 100 million VMT: The serious injury rate target for CY2023 is 4.25 (2019-2023), down from the 4.30 average for years 2017–2021. [See Figure 2 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 5) Total Number of Combined Incapacitating Injuries and Fatalities for Non-Motorized Modes: The CY 2023 target number of fatalities and incapacitating injuries for non-motorists is 437 (2019-2023), down from the average of 467 for years 2017–2021. [See Figure 3 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]

Figure 3-1 Total Fatalities Per 5-Yr Rolling Average

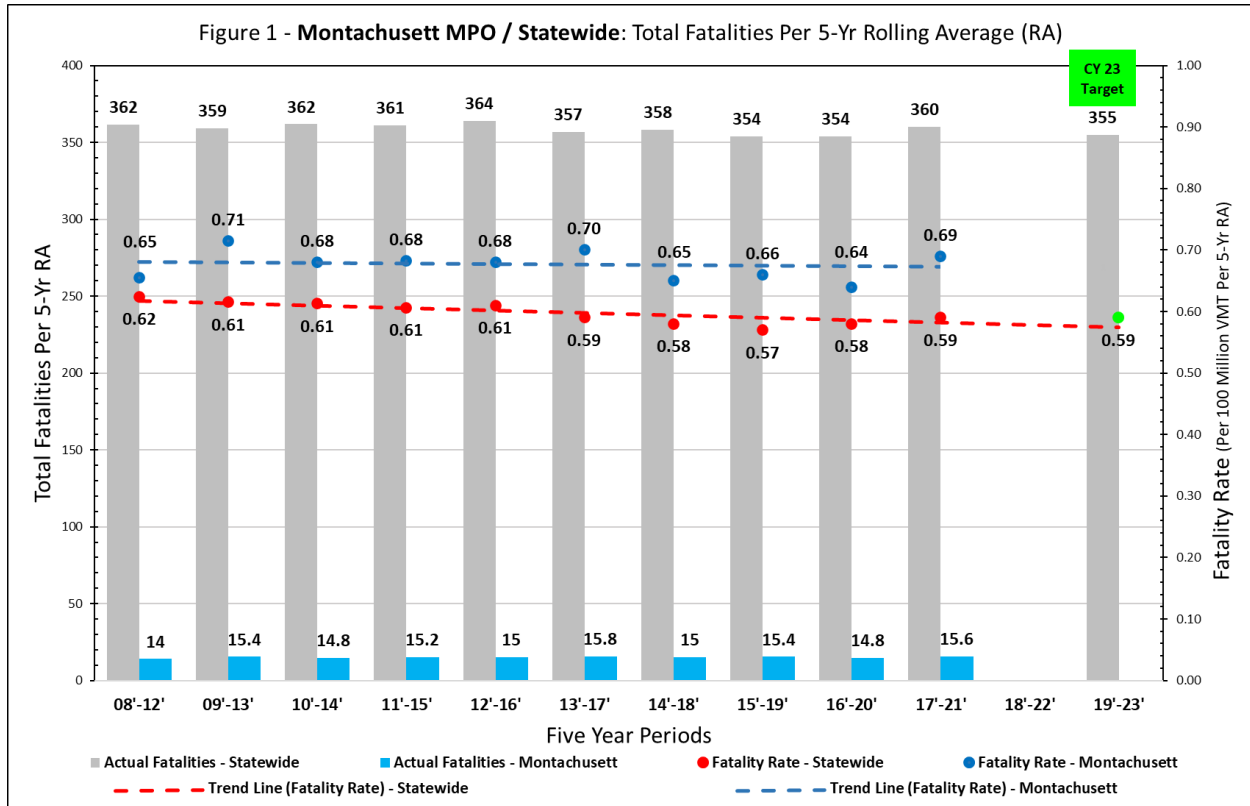


Figure 3-2 Total Serious Injury Per 5-Yr Rolling Average

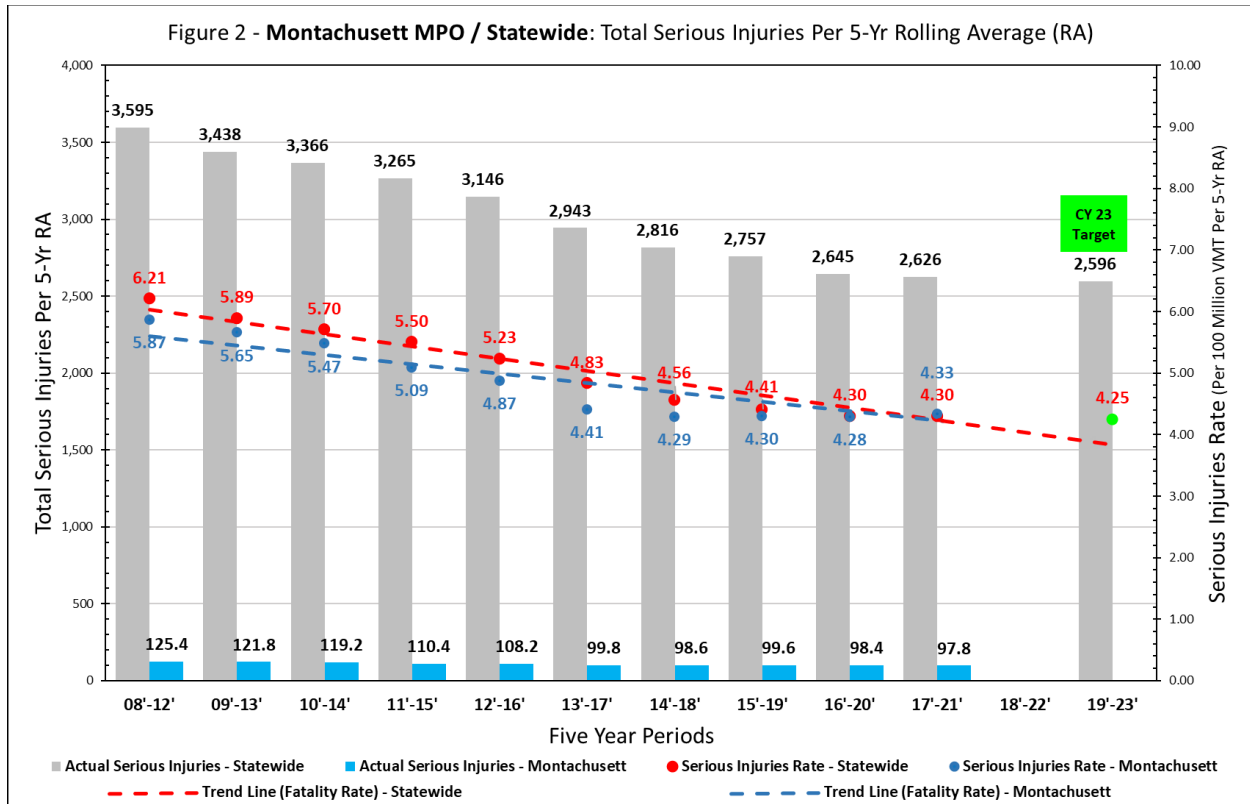
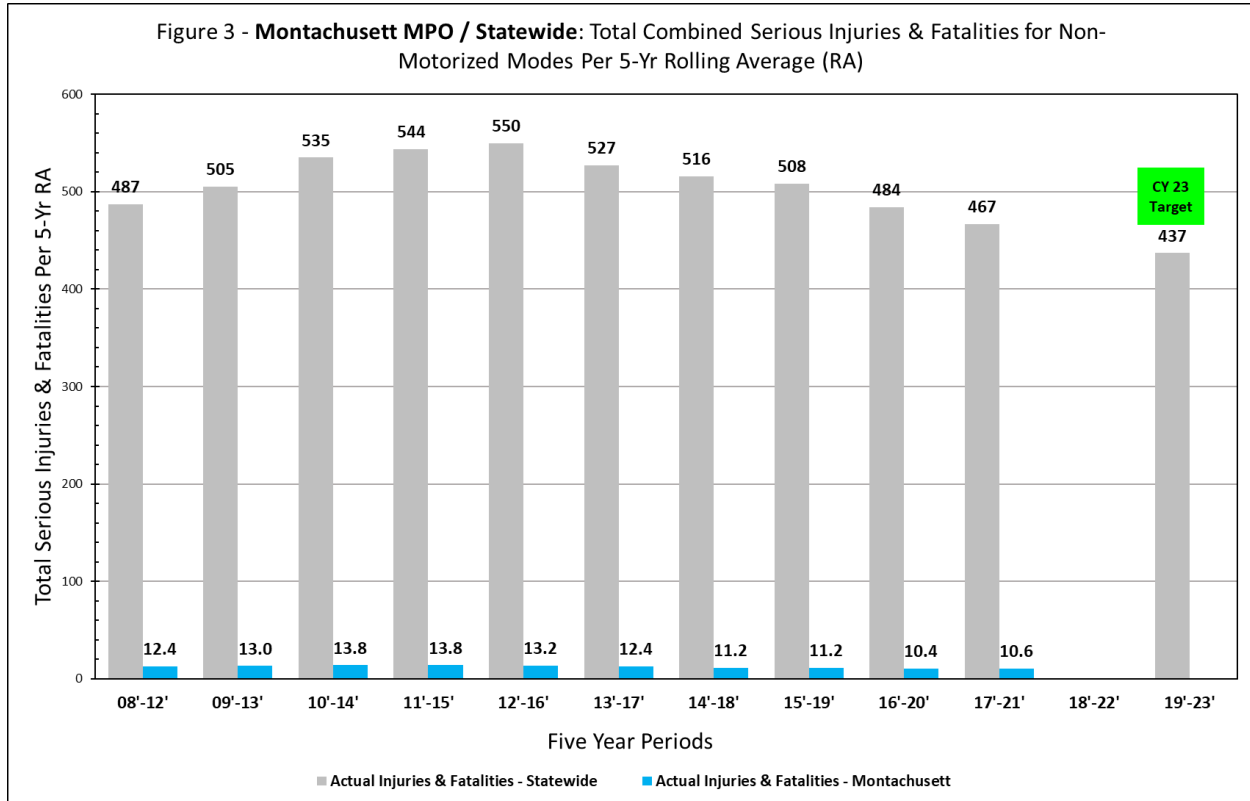


Figure 3-3 Total Combined Serious Injuries & Fatalities for Non-Motorized Modes Per 5-Yr Rolling Average



Source of Data: MassDOT, Office of Transportation Planning

Bridge & Pavement Performance Measures (PM2)

Montachusett MPO has chosen to adopt the 2-year (2024) and 4-year (2026) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by December 16th, 2022. In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. 2-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance measures are tracked in greater detail in MassDOT's 2022 Transportation Asset Management Plan (TAMP).

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures quantify the percentage of deck area, rather than the total number of bridges.

Performance targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2024), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

Table 3-1: Bridge Conditions

Performance Measure	Current (2021)	2-year target (2024)	4-year target (2026)
Bridges in good condition	16%	16%	16%
Bridges in poor condition	12.2%	12%	12%
Interstate Pavement in good condition	71.8%	70%	70%
Interstate Pavement in poor condition	0.0%	2%	2%
Non-Interstate Pavement in good condition		30%	30%
Non-Interstate Pavement in poor condition		5%	5%

Reliability, Congestion, & Emissions Performance Measures (PM3)

Montachusett MPO has chosen to adopt the 2-year (2024) and 4-year (2026) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by December 16, 2022, with MPOs either adopting the statewide target or establishing their own by June 2023.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate NHS as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through CMAQ-funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

Table 3-2: Travel Time Reliability

Measure	Current (2021)	2-year (2023)	4-year (2025)
Interstate LOTTR	84.2%	74.0%	76.0%
Non-Interstate LOTTR	87.2%	85.0%	87.0%
TTTR	1.61	1.80	1.75
PHED (Boston UZA)	18.0	24.0	22.0
PHED (Springfield UZA)	6.2	6.5	6.0
PHED (Worcester UZA)	6.8	7.0	5.0
% non-SOV (Boston UZA)	36.9%	38.8%	39.8%
% non-SOV (Springfield UZA)	21.5%	22.2%	22.2%
% non-SOV (Worcester UZA)	23.4%	25.4%	26.1%
Emissions Reductions: PM2.5			
Emissions Reductions: NOx	0.490	0.000	0.000
Emissions Reductions: VOC	0.534	0.000	0.000
Emissions Reductions: PM10			
Emissions Reductions: CO	6.637	0.354	0.354

Transit Asset Management

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) mandated, and in 2015 the Fixing America's Surface Transportation Act (FAST) reauthorized, FTA to develop a rule to establish a strategic and systematic process of operating, maintaining and improving public transportation capital assets effectively through their entire life cycle. FTA's national Transit Asset Management (TAM) System Rule.

- Defines "state of good repair"
- Requires grantees to develop a TAM plan
- Establishes performance measures
- Establishes annual reporting requirements to the National Transit Database
- Requires FTA to provide technical assistance

In July 2016, FTA published a Final Rule for Transit Asset Management. The rule requires FTA grantees to develop asset management plans for their public transportation assets, including vehicles, facilities, equipment, and other infrastructure.

TAM requirements in this final rule are part of a larger performance management context. MAP-21 created a performance-based and multimodal program to strengthen the U.S. transportation system, which is comprised of a series of nine rules overseen by FTA and the Federal Highway Administration (FHWA). FTA is tasked with developing other rules, including the National Public Transit Safety Plan and the Public Transportation Agency Safety Plan, and has worked jointly with FHWA on a rule to manage Statewide and Metropolitan Planning.

The Montachusett Regional Transit Authority (MART) completed a TAM plan in September of 2018 and presented it to the Montachusett MPO. The Montachusett MPO adopted targets in the following categories in the spring of 2019

- Rolling Stock
- Equipment
- Facilities

MART sets new TAM target goals and certifies their plan annually. The TAM Plan was last self-certified by MART on February 4, 2022. The TAM Plan is required to be updated every four years. The next update is due prior to October 1, 2022 in timing with the TIP process.

As dictated by the Final Rule, a Tier I TAM Plan must include the following nine elements:

- 1) Inventory of Capital Assets – An inventory of the number and type of capital assets. The inventory must include all capital assets that a provider owns, except equipment with an acquisition value under \$50,000 that is not a service vehicle.
- 2) Condition Assessment – A condition assessment of those inventoried assets for which a provider owns or has direct capital responsibility.
- 3) Identification of Decision Support Tool or Processes – A description of analytical processes or decision-support tools that a provider uses to estimate capital investment needs over time and develop its investment prioritization.
- 4) Investment Prioritization – A project-based prioritization of investments.
- 5) TAM policy – A TAM policy is the executive-level direction regarding expectations for transit asset management; a TAM strategy consists of the actions that support the implementation of the TAM policy.
- 6) Implementation strategy – The operational actions that a transit provider decides to conduct, in order to achieve its TAM goals and policies.
- 7) List of key annual activities – The actions needed to implement a TAM plan for each year of the plan's horizon.
- 8) Identification of resources – A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM plan.
- 9) Evaluation plan – An outline of how a provider will monitor, update, and evaluate, as needed, its TAM plan and related business practices to ensure the continuous improvement.

Table 3-3: TAM Performance Measures and Targets

Asset Category - Performance Measure	Asset Class	2022 Target	2023 Target	2024 Target	2025 Target	2026 Target	2027 Target
REVENUE VEHICLES							
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	<i>BU - Bus</i>	10%	10%	5%	0%	0%	50%
	<i>CU - Cutaway Bus</i>	20%	20%	20%	15%	15%	10%
	<i>MB - Mini-bus</i>	0%	0%	0%	0%	0%	0%
	<i>MV - Mini-van</i>	N/A					
	<i>VN - Van</i>	0%	0%	0%	90%	90%	0%
EQUIPMENT							
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	<i>Non Revenue/Service Automobile</i>	0%	0%	0%	0%	0%	0%
	<i>Steel Wheel Vehicles</i>	N/A					
	<i>Trucks and other Rubber Tire Vehicles</i>	17%	12%	10%	10%	5%	5%
	<i>Generators</i>	0%	0%	0%	0%	0%	0%
	<i>Solar Panel Arrays</i>	0%	0%	0%	0%	0%	0%
FACILITIES							
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	<i>Administration</i>	0%	0%	0%	0%	0%	0%
	<i>Maintenance</i>	0%	0%	0%	0%	0%	0%
	<i>Parking Structures</i>	0%	0%	0%	0%	0%	0%
	<i>Passenger Facilities</i>	0%	0%	0%	0%	0%	0%
	<i>Operations/Vehicle Storage</i>	0%	0%	0%	0%	0%	0%

Public Transit Agency Safety Plan (PTASP)

On November 15, 2021, President Biden signed into law the Bipartisan Infrastructure Law (BIL), which authorizes \$108 billion over the next five years for public transportation – the most significant federal investment in transit in the nation’s history. The BIL amends FTA’s safety program at 49 U.S.C. Section 5329(d) (Section 5329(d)) by adding to the public transportation agency safety plan (PTASP) requirements. The requirements under the BIL apply to those transit agencies that must have an Agency Safety Plan in place under the PTASP regulation (49 CFR Part 673). The BIL establishes additional PTASP requirements. Most of these requirements are based on the size of the Urbanized Areas (UZA) that the transit agencies serve.

MART is currently classified as a Small Urban UZA. However new UZA boundaries are being developed with data from the 2020 Census which will affect MART’s UZA. New UZA Maps will be released in the summer of 2022. The population will change and there are four possible outcomes which will affect MART’s PTASP.

1. The Leominster-Fitchburg UZA will remain a Small Urbanized Zone Area with a total population of less than 200,000.
2. The Leominster-Fitchburg UZA will change from a Small Urban to a Large Urban with a total population above 200,000.
3. The Leominster-Fitchburg UZA will be split into new Urbanized Zones with some municipalities brought into the Boston UZA and some creating a new Small Urban UZA. If Fitchburg and Leominster are brought into the Boston UZA our plan must abide by the Large Urban rules.
4. The Leominster-Fitchburg UZA will be absorbed into the Boston UZA completely, also changing to a Large Urban UZA.

New Requirements:

- §(1) Each recipient or State shall certify that the recipient or State has established a comprehensive agency safety plan (ASP) that includes:
 - (A) For each recipient serving an urbanized area with a population of fewer than 200,000, a requirement that the ASP be developed in cooperation with frontline employee

representatives, followed by the board of directors (or equivalent entity) of the recipient approve, the agency safety plan and any updates to the ASP. If the transit agency is not already compliant with the new PTASP requirements, an update to the agency's ASP must be updated to incorporate these new requirements by December 31, 2022.

- (B) OR, in the case of a recipient receiving assistance under section 5307 that is serving an urbanized area with a population of 200,000 or more, the safety committee of the entity established under paragraph (5), followed by the board of directors (or equivalent entity) of the recipient approve, the ASP and any updates to the ASP;
- (C) Strategies to minimize the exposure of the public, personnel, and property to hazards and unsafe conditions, and consistent with guidelines of the Centers for Disease Control and Prevention or a State health authority, minimize exposure to infectious diseases. Each transit agency should consider identifying mitigations or strategies related to exposure to infectious diseases through the safety risk management process described in the agency's ASP.
- (D) In the case of a recipient receiving assistance under section 5307 that is serving an urbanized area with a population of 200,000 or more, a risk reduction program for transit operations to improve safety by reducing the number and rates of accidents, injuries, and assaults on transit workers based on data submitted to the National Transit Database.
 - (i) A reduction of vehicular and pedestrian accidents involving buses that includes measures to reduce visibility impairments for bus operators that contribute to accidents, including retrofits to buses in revenue service and specifications for future procurements that reduce visibility impairments; and
 - (ii) The mitigation of assaults on transit workers, including the deployment of assault mitigation infrastructure and technology on buses, including barriers to

restrict the unwanted entry of individuals and objects into the workstations of bus operators when a risk analysis performed by the transit agency determines that such barriers or other measures would reduce assaults on transit workers and injuries to transit workers.

- § No updates to sections 2 and 3.
- § (4) In general, the transit agency (in a large urban area) shall establish performance targets for the risk reduction program using a 3-year rolling average of the data submitted by the recipient to the national transit database under section 5335. Performance targets for a risk reduction program are not required to be in place until FTA has updated the National Public Transportation Safety Plan to include applicable performance measures by December 31, 2022. Find additional guidance on planning and target setting on FTA's [Performance-Based Planning](#) pages. Transit operators also must certify they have a safety plan in place meeting the new additional requirements of the rule by December 31, 2022. The plan must be updated and certified by the transit agency annually.
- § (5) In general. —For purposes of this subsection, the safety committee of a recipient (in a large urban area) shall—
 - (i) be convened by a joint labor-management process;
 - (ii) consist of an equal number of—
 - a. frontline employee representatives, selected by a labor organization representing the plurality of the frontline workforce employed by the recipient or, if applicable, a contractor to the recipient, to the extent frontline employees are represented by labor organizations; and
 - b. management representatives; and
 - (iii) have, at a minimum, responsibility for—
 - a. identifying and recommending risk-based mitigations or strategies necessary to reduce the likelihood and severity of consequences identified through the agency's safety risk assessment;

- b. identifying mitigations or strategies that may be ineffective, inappropriate, or were not implemented as intended; and
- c. identifying safety deficiencies for purposes of continuous improvement

Table 3-4 PTASP Performance Targets

Risk Reduction Performance Targets								
<i>Specify performance targets developed for the risk reduction program</i>								
The targets below are based on the review of the previous three years of MART's safety performance data.								
Mode of Transit Service	Fatalities (Total)	Fatalities (3 Yr Avg)	Injuries (Total)	Injuries (Avg)	Safety Events (Total)	Safety Events (Avg)	Driver Assaults (Total)	System Reliability (Miles between Failures)
Fixed Route	0	0	5	2	2	1	0	33,000
Demand Response	0	0	4	2	2	1	0	100,000

*Rates are per 1,000,000 vehicle revenue miles

OSONOC Events & Injuries: (Other Safety Occurrence Not Otherwise Classified)				
Mode of Transit Service	Injuries* (Total)	Injuries (Rate)	Safety Events (Total)	Safety Events (Rate)
Fixed Route	4	1.33	4	1.33
Demand Response	8	2.66	8	2.66

* Indicate that customer was transported by ambulance

Risk Reduction Performance Target Coordination		
<i>Describe the coordination with the State and Metropolitan Planning Organization(s) (MPO) in the selection of State and MPO safety performance targets.</i>		
The Accountable Executive shares our ASP, including safety performance targets, with the Metropolitan Planning Organization (MPO) in our service area each year after its formal adoption by the Advisory Board. MART's Accountable Executive also provides a copy of our formally adopted plan to the Massachusetts Department of Transportation (MassDOT). MART staff are available to coordinate with MassDOT and the MPO in the selection of MassDOT and MPO safety performance targets upon request.		
Targets Transmitted to the State	State Entity Name	Date Targets Transmitted
	MassDOT	11/16/22
Targets Transmitted to the MPOs	MPO Name	Date Targets Transmitted
	Montachusett Metropolitan Planning Organization	11/16/22